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ABSTRACT

This examination of the status of geography in U.S. junior colleges begins with a consideration of the role of two-year colleges in higher education, and an appraisal of the place of geography in the context of general education. Results of a broad survey including number of instructors, courses, enrollment, etc. are followed by a detailed examination of the four courses most commonly offered in two-year colleges--economic, world regional, cultural, and physical geography. Consideration is then given to: training and staffing (pre-service and in-service); instructional techniques and strategies; and classroom equipment and library needs. Resource and bibliographic guides in the form of appendices supplement this information. Fourteen recommendations directed to geography instructors and administrators conclude this report. (JLB)

GEOGRAPHY IN THE TWO-YEAR COLLEGES

Prepared by the Panel on
Geography in the Two-Year Colleges

COMMISSION ON COLLEGE GEOGRAPHY

PUBLICATION No. 10

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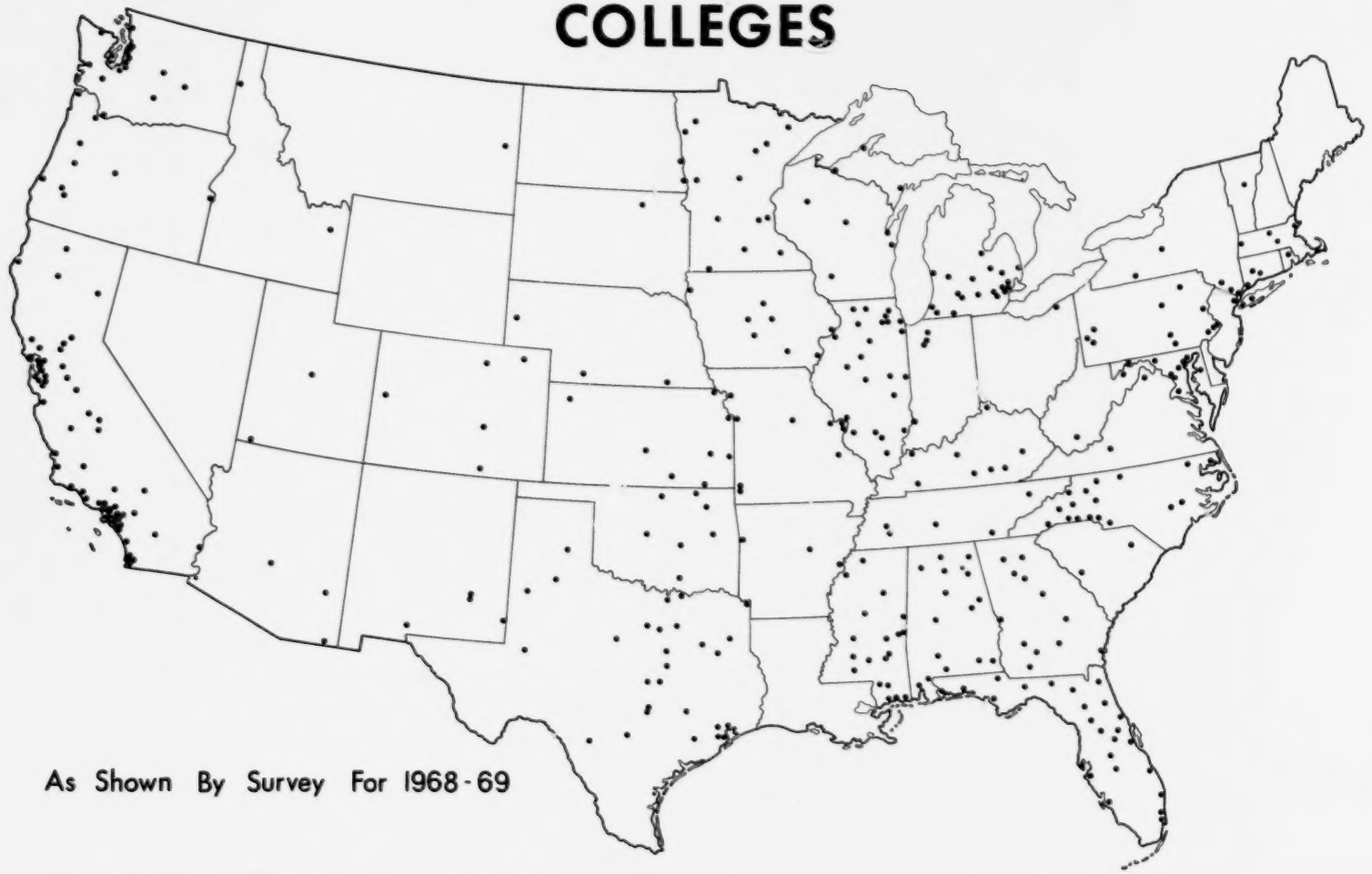
GEOGRAPHY IN THE TWO-YEAR COLLEGES



As Shown By Survey For 1968-69

PREFACE

In recognition of the rapid expansion of two-year colleges in many areas of the United States, the Commission on College Geography of the Association of American Geographers selected a panel of professional geographers to examine the position of their discipline in these schools. This panel was charged with the task of studying the present role of geography and of making recommendations and providing guidelines for improving geography's contribution. It was the Commission's firm conviction that any group concerned with geographic education at the undergraduate level should give special attention to the nation's increasingly important two-year colleges.

This report is directed especially to those in responsible positions of administration, counseling, and instruction in the two-year schools, many of which are designated as junior or community colleges. To the geographers in four-year institutions receiving students from two-year colleges in large numbers, this report hopefully will stimulate continuing effective articulation with those teaching geography in the two-year colleges. Lastly, this study should alert all professional geographers to their responsibilities to develop the best possible sequence of geographic education in American schools, colleges, and universities.

In order to obtain basic information, presidents and instructors of geography courses in two-year colleges were contacted. The panel acknowledges with gratitude the cooperation of all those responding. With the data obtained, the panel has attempted to appraise the status of geography in these schools. Studies pertaining to curriculum development, Commission on College Geography sponsored training of geography instructors, and other studies, have been related in this report to the needs of the two-year colleges. Finally, the panel, after consulting with geographers and others familiar with the goals and programs of two-year colleges, has made a number of recommendations. Perhaps the implementation of these recommendations will permit geography to expand its role in the general education programs of the two-year colleges.

To those who have participated in the discussion and review of this study, the panel expresses its appreciation. In particular, the contributions of the following are recognized: Homer Aschmann, University of California at Riverside; Sheila M. Brazier, Golden West College, Huntington Beach, California; Edward L. Chapin, San Bernardino Valley College; Edward M. Davis, Santa Fe Junior College, Gainesville, Florida; Gordon J. Fielding, University of California at Irvine; Ralph E. Page, University of Florida; Gertrude M. Reith, California State College at Fullerton; Harry Schaleman, University of South Florida, St. Petersburg campus; Otis Shahan, St. Johns River Junior College, Palatka, Florida; Elaine Steinberg, Florida Central Junior College, Ocala, Florida; Dewey Stowers, University of South Florida; and James Wattenbarger, University of Florida.

A conference on Science in the Two-Year College was held in Washington, D. C., on June 18 and 19, 1969, supported by the National Science Foundation. Three members of this panel attended the conference and it provided valuable viewpoints and ideas which have been incorporated into this report.

A grant from the National Science Foundation to the Association of American Geographers for the Commission on College Geography has made possible the conduct of this study.

Members of the panel are:

James R. Anderson, Chairman
University of Florida

Richard D. Dastyck
Fullerton Junior College (California)

Leonard L. Hodgman
Joliet Junior College (Illinois)

Richard E. Lonsdale
University of North Carolina

Curtis S. Murton, Jr.
Mid Michigan Community College

Stanley H. Ross
San Fernando Valley State College (California)

Kennard W. Rumage
State University College at Brockport (New York)

Thomas P. Templeton
Mesa Community College (Arizona)

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INTRODUCTION

THE CHALLENGE FOR GEOGRAPHY

The two-year or junior college has become an established and important part of America's system of higher education. Enrollments exceeded 1.5 million in 1967, and some predictions have them reaching 3 million by 1972.[1] Two-year schools now account for about 30 percent of all lower-division enrollments in higher education.[2] The number of such schools, now in excess of 1000, has increased at the rate of about one per week since 1963. It is evident that any academic field which does not play an active role in the two-year colleges is failing to participate in the education of millions of Americans (see Frontispiece).

As a subject of instruction in two-year colleges, geography's position varies. In many schools there are strong and active geography programs staffed by well-qualified persons. At the other end of the scale are two situations requiring attention. First, some geography is offered by persons with limited training in the subject, and often in conjunction with outmoded themes and procedures. Second, geography is sometimes omitted from the curriculum. Viewing the situation as a whole, geography occupies a relatively poor position in the nation's two-year colleges. Currently, there is a shortage of well-qualified instructors, as in several other academic fields. Persons with little training or interest in geography are sometimes called on to "pinch hit" and often they become permanent instructors of geography. The minor role of geography in high school curricula seems to be carried over into the two-year colleges. Yet, despite these difficulties, there are many instances of highly successful two-year college programs. These provide ample grounds for optimism and a basis for recognizing geography's greater potential.

The challenge for geography is apparent. Many persons feel, both geographers and others, that geography ought to play a more active role in the liberal education of American college students. Too often students examining the social, political, historical, and other dimensions of a problem fail to recognize the spatial and environmental dimensions. As one observer put it, "the average present-day American has a pitiful knowledge and understanding of the world in which he lives, despite the fact that more is known about the earth now than at any other time in Man's history."[3] If geography is not offered and taught well in the two-year colleges, then a growing segment of the nation's college population will help to perpetuate the geographic illiteracy for which Americans are justly known.

An inadequate geography program in the two-year schools reduces the likelihood that those students transferring to four-year colleges will study geography there. As Charles Falk has put it, "For many of the students, the junior college education lays the foundation for baccalaureates, advanced degrees, and employment in one of the professions."[4]

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1. William A. Harper (ed.), *1968 Junior College Directory,* (Washington: American Association of Junior Colleges, 1968), p. 7.
2. U.S. House of Representatives, Committee on Science and Astronautics, *The Junior College and Education in the Sciences,* (Washington: Report of the National Science Foundation to the Subcommittee on Science, Research and Development, 1967), p. 5.
3. Sanford H. Bederman, "Geography," *Georgia Education Journal,* Vol. 53, September 1959, p. 12.
4. Charles E. Falk, in the foreword to *Junior College Teachers of Science, Engineering, and Technology, 1967,* (Washington: National Science Foundation, 1968).

It seems appropriate, therefore, to analyze in some detail the general nature of the problem and the opportunities for improvement. It is important to examine first the general characteristics of the two-year colleges and their philosophy and role in higher education, and then to appraise the public conception of geography and the place of geography in general education.

THE PHILOSOPHY AND ROLE OF TWO-YEAR COLLEGES

The rapidly expanding role of the two-year college in the American educational system makes it important to recognize some of the more basic similarities and differences in philosophy or objectives between it and the four-year school. The objectives of a four-year institution may be exemplified by a resolution from the college faculty at the University of Chicago. The resolution states that the school's objectives are "to produce well-rounded men and women, equipped with accurate knowledge, and sound methods of investigation and reflection, appreciative of the best that has been produced in the various fields of human endeavor, and concerned with the understanding and enrichment of twentieth-century human life in all its phases."[5] Such a statement represents not only the academic and philosophical approach of most four-year colleges, but it also reflects a unity of purpose that is common among such institutions. The statement does not, however, suffice for two-year colleges.

The two-year colleges differ widely in their sponsorship, aims, and range of educational services they provide. Some are single-purpose institutions, preparing students for further college work. Most, however, offer a rather diversified program including both college transfer and technical-vocational courses.

Most of the two-year colleges are supported by local and/or state governments, and their existence is based on the idea that "higher education should be given to each individual somewhat in proportion to the extent that the expenditure can be justified in terms of the needs of the community, both economic and cultural."[6] The result has been that the public two-year colleges, with little or no tuition charges, complement the work of all other levels within the educational hierarchy: high school, technical school, and college or university.

Thus, with the wide range of functions and resulting programs and services, it is necessary that the junior college curriculum be highly flexible. It must meet a broad spectrum of social and individual purposes, and thus it departs from the four-year college tradition. The public two-year college is usually called on to offer various courses, academic and vocational, for adult and continuing education and to provide programs designed to permit the employed person to upgrade himself. The junior college, therefore, should not and in most cases does not "merely duplicate" the services of other collegiate institutions.

The objectives of the two-year college must necessarily differ from those of the four-year institution. They are no less academic and philosophical, yet they retain additional pragmatic objectives that are inherent in any educational institution that responds to local needs. As in all publicly supported institutions, curriculum and services reflect the fact that they were established by, and are responsible to, the local community. These facts should be borne in mind in assessing the role of geography, or any other academic field, in the two-year schools.

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5. Robert L. Kelly, *The American Colleges and the Social Order,* (New York: Macmillan, 1940), pp. 210-211.
6. James W. Thornton, *The Community Junior College,* (New York: Wiley, 1960), p. 33.

GENERAL CHARACTERISTICS OF TWO-YEAR COLLEGES

One of the more important events in education in the past half century has been the dynamic growth of the uniquely American two-year college.[7] These colleges figure prominently in society's goal to educate the many as well as the few. Nowhere in higher education is growth more dramatic, and it demonstrates the expansion and extension of educational opportunity in a variety of ways.[8]

According to historians of the two-year college movement, the oldest publicly supported junior college still in existence was established in 1901 at Joliet, Illinois.[9] The philosophy of offering the first two years of a baccalaureate program at a local school spread slowly at first, but later gathered momentum and by 1930 there were 450 in existence. By 1960 there were 650 such schools. Since 1960 the expansion and growth of the two-year colleges has been particularly rapid. Almost 400 new schools have been established since that time, bringing the total to over 1,000. The trend is expected to continue as communities and states seek to put two years of college within financial and commuting reach of all people.

Acceptance by the American public is reflected in the enrollment figures. In 1950 there were 500,000 students in two-year colleges; the number reached one million in 1964 and exceeded 1.5 million in 1967. According to some predictions, enrollments will reach three million by 1972 (see Figures 1 and 2). As noted earlier, about one-third of all students commencing a higher education program start in a two-year college. The percentage in some states is high – California, 85 percent; Florida, 65 percent; and Illinois, 45 percent.[10]

There are three general categories of junior colleges according to the type of sponsorship and the number of each type. These are church-related (175), independent (100), and public (725). About 85 percent of the students enrolled in two-year colleges are attending public institutions which attempt to place higher education within the geographic and economic reach of all. If these colleges are to broaden the opportunity for college training, programs must relate to the needs, aspirations, abilities, and interests of large numbers of people.

Thus the federal government has given impetus to the recent growth of the two-year colleges. The initial boost was provided by the Higher Education Facilities Act of 1963 and later amendments. Support for facilities, programs, and staff have also come from the National Science Foundation (NSF), National Defense Education Act (NDEA), and the Education Professions Development Act (EPDA).

Considering the rapid growth, it is not surprising that both existing two-year colleges and the newly developing schools are confronted by a range of problems posed by the ever-increasing number of students. These problems are both institutional and discipline-related. Many problems overlap and are shared at both levels. Problems such as teaching loads, class size, faculty rank, supporting staff, and

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7. The term "two-year college" is intended to correspond to the "lower division" at a college or university and includes all types of junior colleges, community colleges and other institutions not offering the baccalaureate degree.

8. Further aspects of the diversity, size, purpose, make-up of student body, type of control or sponsorship and variety of curricula can be obtained from the annual directories of the American Association of Junior Colleges and *The Junior College and Education in the Sciences*, (Washington: National Science Foundation, 1967).

9. *An Introduction to American Colleges*, (Washington: American Association of Junior Colleges, 1967), p. 4.

10. E. J. Gleazer, Jr., "Junior College Education," *American Education*, U.S. Department of Health, Education and Welfare, Vol. 5, December 1968-January 1969, p. 12.

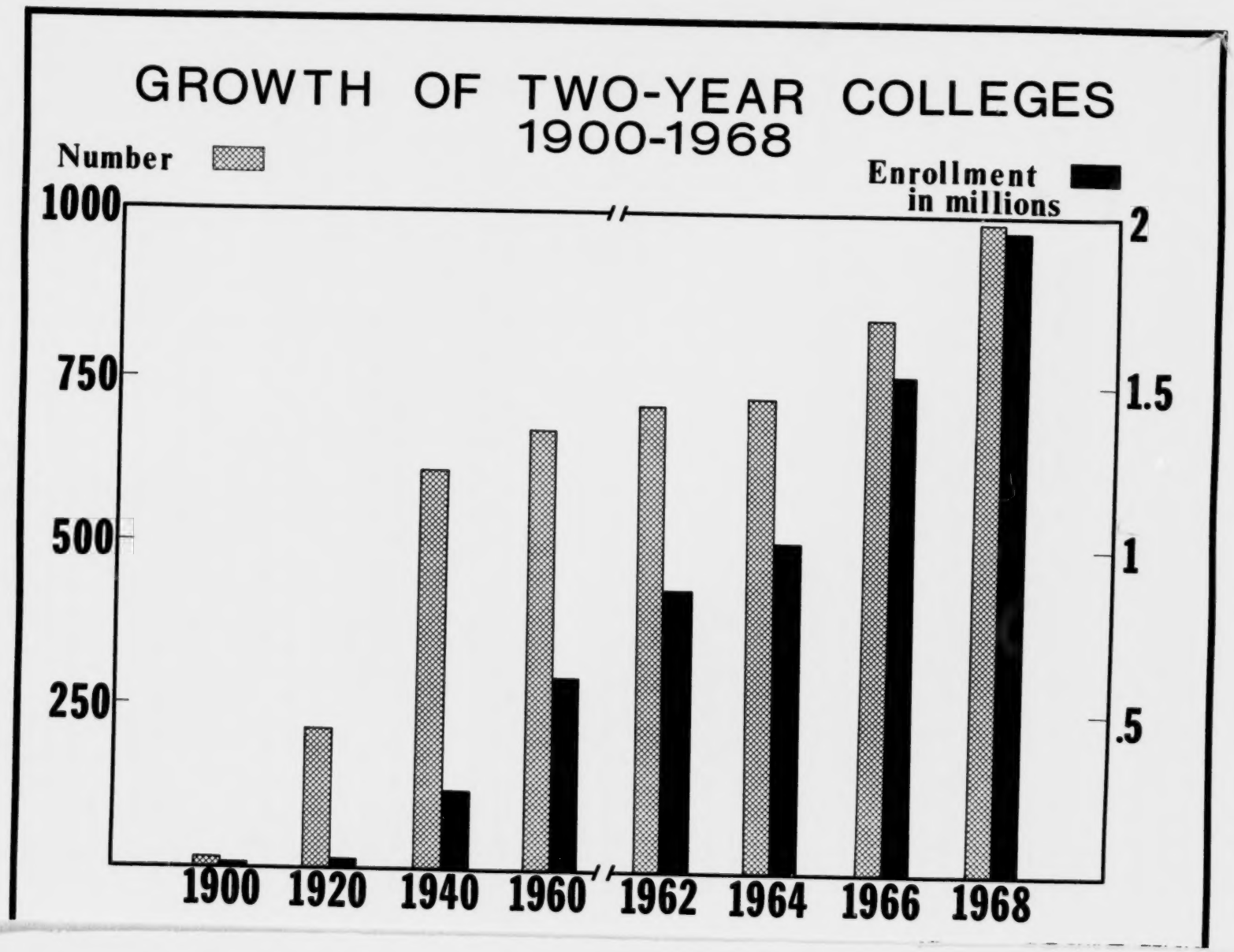
GROWTH OF TWO-YEAR COLLEGES
1900-1968
Number
Enrollment in millions
1000
750
500
250
2
1.5
1
.5
1900
1920
1940
1960
1962
1964
1966
1968

FIGURE 1

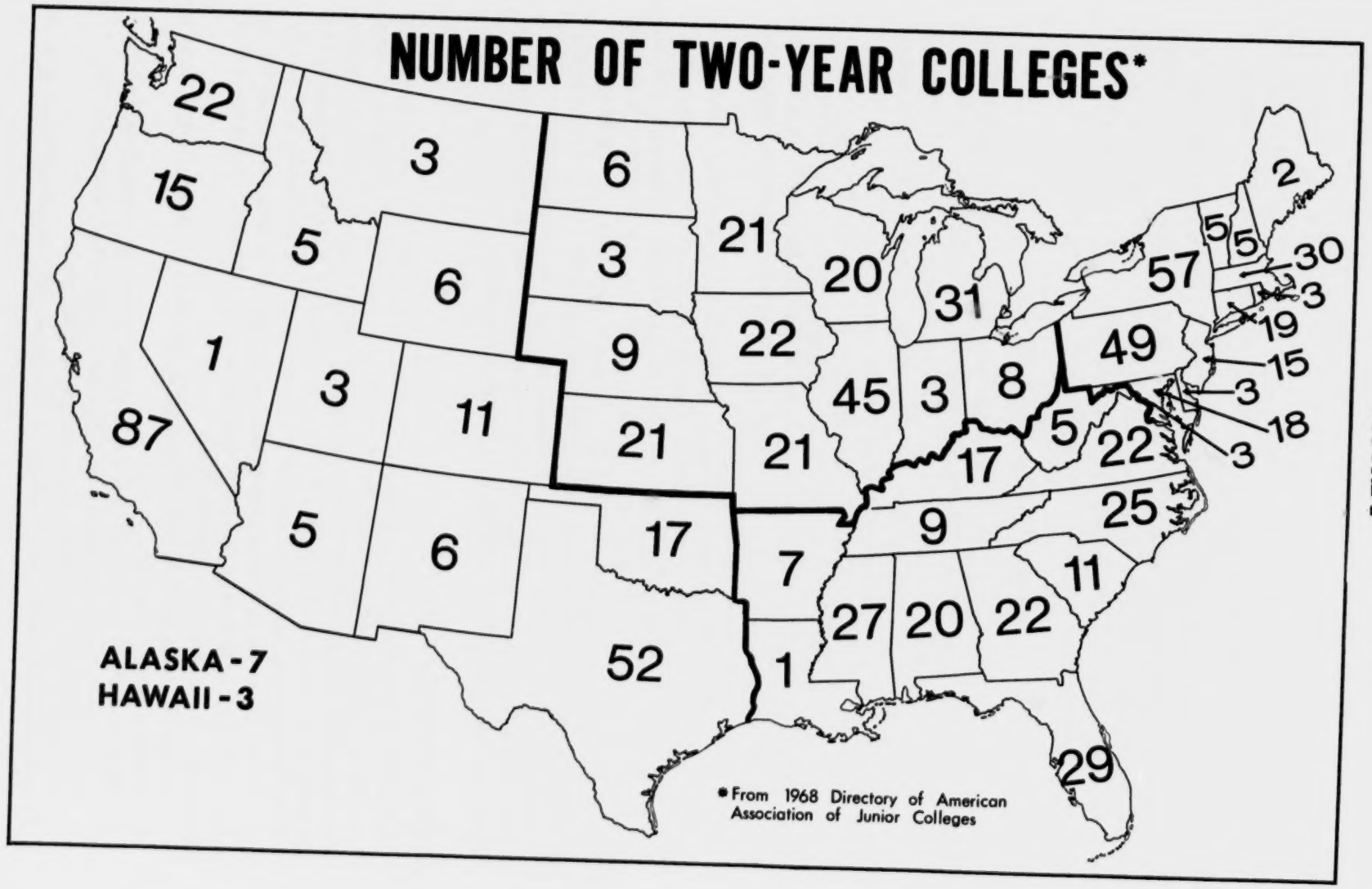
NUMBER OF TWO-YEAR COLLEGES*
22
15
87
3
5
6
1
3
11
6
3
9
21
21
22
45
3
8
17
7
1
52
17
5
6
21
20
31
49
5
22
9
25
11
27
20
22
57
5
5
2
30
3
19
15
3
18
3
29
ALASKA - 7
HAWAII - 3
*From 1968 Directory of American Association of Junior Colleges

FIGURE 2

facilities, which hinge upon institutional funding and policy, are institutional in nature. On the other hand, problems of curriculum, articulation, staffing, and teacher training are discipline-related.

Obviously, many institutional problems strongly influence the quality of education in a given discipline. Other major problems fostered by growth include articulation of programs with four-year schools, initial staffing, and the training of instructors.

The sharp increase in the number and size of two-year colleges underscores the importance of up-to-date information on the status of geography in the curriculum and the qualifications of geography instructors. Geographers as well as those in other disciplines must face these problems. The two-year college is an established part of the American educational system and can no longer be overlooked or ignored.

GEOGRAPHY'S PUBLIC IMAGE

In any discussion of geography in the two-year colleges, the question of the discipline's public image arises. The popular conception of geography is sometimes confused and inconsistent. Students and many college administrators are uncertain about the content and scope of the field. The image of capital cities and quaint foreign lands tends to obscure the discipline's real educational function. This is a fundamental fact of geography's existence which has an important bearing on several of the problems discussed in this report. The "image problem" is something with which virtually all geography teachers have had to contend. However, there is hope that through good teaching, requiring increased numbers of qualified geography teachers, the image problem will disappear.

Tangible evidence of uncertainty about geography's educational function is evident from the data presented in Table 1. Fewer than half of the two-year colleges offer geography, and of these about half offer only one course. Geography accounts for only about two-thirds of one percent of two-year college enrollments. Courses are sometimes taught by persons with limited formal training or interest in geography, reflecting in part the unfortunate notion held by some junior college administrators that geography is something that can be taught by any social science teacher, which in itself helps perpetuate the image problem. Geography is not alone in this problem. Economics, for example, is frequently in a similar situation.

Origin of Geography's Image

Reputations and images of academic disciplines, like those of people, places, and products, are conditioned by a variety of events and circumstances, some real, some outdated, some exaggerated, and some imaginary. Also reputations change slowly, and geography's image today is in part more a reflection of conditions prevailing two or three decades ago than an accurate index of the field's current nature and vitality. Some of the facors which have contributed to geography's uncertain image in the public mind are listed below. The list is not meant to be inclusive, nor are the factors listed in any order of assumed importance.

1) Geography is a grade-school subject, and the average citizen finds it hard to accept it as anything else.
2) Modern geography has not had any national heroes or internationally known figures (e.g., Freud in psychology, Keynes in economics, Einstein in physics) with whose work the public can associate geography.
3) Geography has been poorly taught in the public schools, too often by persons

with little or no training or competence in the field.

4) Until recently there have been relatively few good textbooks from which the teacher could choose. A good textbook can assist a poorly trained teacher. Dull and encyclopedic textbooks can do much to kill student interest.
5) School administrators and college admissions officers who are uncertain about geography's role often decide that training in that subject is not essential at the secondary or college levels.
6) The content of geography is badly misunderstood by the geographer's colleagues in other academic fields. They frequently think of it only in traditional terms, where the focus is on maps, place names, and descriptions of foreign places. While geographers share some of the blame for this, the academic provincialism of people in other fields is a major barrier to image change.
7) Geographers have not always been sufficiently responsive to changes within American education. They were slower than the other social sciences in developing a concern with concepts, theory, and the application of quantitative methods. At present, perhaps too few geographers are responding to the national wave of interest in domestic social issues.
8) Geography has sometimes made foolhardy claims of what it could accomplish compared to what it could conceivably handle (e.g., "bridging the gap between the natural and social sciences," "understanding the relationships between man and his environment," and "studying the variable character of the earth's surface as the home of man").
9) Geography's small size has perhaps in the final analysis, constituted the fundamental reason for the discipline's uncertain image. Small numbers help to explain:
   (a) why there are comparatively few geographers in high positions in education, government, and industry (considering its size, geography *has* had a respectable number of such persons it could claim).
   (b) why there are fewer nationally recognized scholars and authors that are identified with the field.
   (c) why there are comparatively few popular books by geographers (especially paperbacks whose use in the classroom has become widespread).
   (d) why two-and-four-year colleges have a difficult time recruiting well-qualified geographers.
   (e) why non-geographers frequently teach geography in the public schools and two-year colleges (for every bachelor's degree granted in geography in the United States, 15 are given in history, 8 in political science, 8 in sociology, and 13 in other social sciences).

A Carry-Over from the Secondary Schools

Geography's image in the two-year schools may constitute a direct reflection of the status of geography in the secondary schools. In so far as geography is concerned, conditions in two-year colleges and high schools are similar: geography is usually subsumed under a social studies curriculum, trained geography teachers are very difficult to recruit, and geography is often taught by non-geographers. By contrast, in senior colleges the person teaching geography almost always has an advanced degree in that field.

In most analyses of the field's position in the secondary schools, attention is rightfully focused on the core of the problem, the quality of teaching. There is a

shortage of qualified persons applying for jobs as geography teachers in secondary schools. Phillip Bacon noted, "Not long ago, the city of Chicago advertised nationally for personnel to fill 300 positions as teachers of geography in its high schools. Fewer than a dozen applicants were found qualified for certification as geography teachers.[11] What usually happens under these circumstances is that the city or school district goes ahead and hires the necessary number of geography teachers, hiring the best they can get. Frequently this means hiring the history major with six hours of geography to teach both history and geography, or the retired military officer, without any formal training in geography, who has travelled widely, to teach geography.

The teacher called upon to teach courses both within his field and outside of it is often going to devote his energies and enthusiasm to courses within his field, and treat the others as a kind of unpleasant chore and imposition. Under these circumstances the geography teacher can hardly be expected to offer a course which is stimulating, relevant, and eagerly received by students. Indeed, after an exposure to such a course in junior high or high school, the majority of students go on to college with a distorted notion of what to expect in a geography course. It is doubtful that there is a single teacher of freshman college geography in the nation who has not come face-to-face with this problem.

If we accept the logic that "the strength of the high school geography program is closely related to the extent of teacher preparation in that field,"[12] as observed by Mary Frick, then the problem is indeed a challenging one. In North Carolina, for example, a 1960 survey showed that only three of 313 teachers of geography were certified in that field, and 32 percent of the geography teachers never had a single college course in geography.[13] A 1969 survey of students in freshman geography at the University of North Carolina (Chapel Hill) showed that 48 percent of the students had had geography in secondary schools, but only seven percent indicated that they found the course "useful and interesting," and only seven percent believed that the course had been taught by a person who identified himself as a "geographer." In a 1962 study of geography of New Jersey's secondary schools, it was observed:

> . . .it cannot be said that the teaching of the discipline is in a state of healthful vigor. Two offerings dominate geography programs: Economic Geography and World Geography. The former is often ineptly taught by Business Education majors, the latter ineptly taught by majors in the Social Studies. Political Geography stands a poor third; other courses trail badly. All are taught by persons poorly trained in the field– by teachers who have accumulated between 3 and 10 semester hours of geography.[14]

People trained in history often dominate secondary school social studies programs. In Georgia, for example, such teachers are required to have a history major. While

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11. Phillip Bacon, "A Career in Elementary Teaching," *Geography as a Professional Field*, (Washington: U.S. Dept. of Health, Education, and Welfare, 1966), p. 6.

12. Mary Louise Frick, "The Status of Geography in the High School Today," *Journal of Geography*, Vol. 64, October 1965, p. 318.

13. R. E. Cramer and C. F. Gritzner, Jr., "Let's Sell Geography," *Journal of Geography*, Vol. 62, January 1963, pp. 3-11.

14. Leeanna Del Duca and Daniel Jacobson, "The Status of Geography in the Secondary Schools of New Jersey," *Journal of Geography*, Vol. 61, March 1962, p. 107.

few would question the importance of history in a secondary school curriculum, it can be seriously questioned that the average history major is competent to teach geography (or economics, sociology, etc.). In Georgia, Sanford Bederman has observed:

> . . .as the student enrollment in geography in the state increased, the number of qualified geography teachers has lagged behind pitifully. As school systems have instituted more sections and courses of geography in their curriculum, trained geography teachers have not been hired to do the work, but rather they have used their regular social studies teachers, most of them untrained in the subject to do the spade work. This is very dangerous, for the teacher in this situation is not happy, and most often the student suffers. Consequently, the discipline of geography is poorly taught, and concomitantly, it is poorly learned.[15]

Another element influencing geography's image on the secondary school level is that it is not considered essential by college admissions officers. The better high school students understandably concentrate on those subjects which the colleges require for admission, such as history, or mathematics. If colleges do not require geography for admission, how can secondary school students and guidance counselors be expected to give it much attention? This problem is well-demonstrated in a 1962 study by Alice Rechlin.[16]

Compounding the image problem is the fact that some secondary schools allow credit for geography courses only to those students not in college-preparatory programs. In short, only the weaker students are allowed to take it. This is true in several North Carolina secondary schools. According to James Landing, it is also true in many schools in Indiana.[17]

The experience of one former Maryland high school teacher (who was trained in geography) summarizes the problem rather well:

> When I came to Northwood High in 1963, there were no qualified geography teachers. Those teaching it had only marginal credits in geography. One particular person was a football coach, and when I replaced him I found a preponderant number of athletes in my class. Students, seniors particularly, elected geography because they thought it was an easy course. It was mostly memorization of rivers and cities, learning what countries were where and what was grown in them, and copying reports on various countries from the Britannica or World Book, and supplementing them with brochures and pamphlets acquired from the nearby embassies. Most of the juniors and seniors electing geography were those in the nonacademic programs such as general, business, and vocational. The guidance counselors never recognized geography as being essential for the college-bound student. The better students at Northwood were always channelled into history courses. Many students and teachers viewed geography as a "garbage can course." Only after I

15. Sanford H. Bederman, "Geography in Georgia Schools," *Georgia Education Journal*, Vol. 57, October 1963, p. 12.

16. Alice M. Rechlin, "High School Geography and the College Admissions Officer," *Journal of Geography*, Vol. 61, May 1962, pp. 193-195.

17. James E. Landing, "Geography and Earth Science in the High Schools of Indiana," *Journal of Geography*, Vol. 66, February 1967, p. 84.

was able to establish myself did I begin to find some of Northwood's more able students registering for my classes.[18]

Basis for Optimism

The record is far from altogether discouraging. There are many instances of highly successful geography programs in both the secondary schools and in the two-year colleges. Not surprisingly, they are almost always found where the instructor has at least one of his degrees in geography. These instructors often teach geography as an interesting, relevant, and intellectually challenging subject.

One very bright spot appears in the materials developed by the National Science Foundation-supported High School Geography Project, now being made available through a commercial publishing firm (The Macmillan Co.). Their goal has been to "help close the long recognized gap between the ideas current among professional geographers and what is being taught to high school students." The impact of these materials, once adopted on a broad scale in the secondary schools, will likely filter "upward" to the two-year colleges and provide their teachers with better printed instructional guidance than in the past.

A change in image requires time. It also requires a substantive basis for changing attitudes. The impressive growth in size and intellectual vitality which has characterized professional geography in recent years should inevitably have an impact on the field's image at all levels.

GEOGRAPHY IN GENERAL EDUCATION

Geography has an important place in the general education curriculum. The world around us is constantly changing. Day by day we are confronted by technological, social, and political developments which influence the character of our environment. Society is increasingly torn by value conflicts dealing with such diverse issues as the relevancy of certain subject matter fields, conformity versus individualism, race relations, and materialism versus idealism to mention a few. Revolutionary advances in communication and transportation have so narrowed our world that astronauts can orbit it in a couple of hours or land on the moon and return to earth in a matter of days. As our world has narrowed our involvement in world affairs has increased to the degree that social, technological, and political revolutions in lands that were once considered remote can instantaneously affect our lives.

In this era of rapid technological change and proliferation of knowledge, it is difficult to comprehend that as recent as 300 years ago it was still possible for a gifted scholar to attempt to master nearly all important scientific knowledge. Currently, the diversity of science is such that in 1968 the National Science Foundation counted 142 sub-field groupings and 1,235 specialties in the experimental sciences alone.[19] In addition to the ever increasing diversity and division of labor in the sciences, we are living ". . .in a world in which the 'truths' of today become 'untruths' or irrelevant tomorrow. According to some observers, the present-day half-life of science is about 10 years; only about half of what is accepted in science today will still be considered true 10 years from now, and only about a

18. Sherman E. Silverman, personal correspondence, June 12, 1969.

19. *Toward a Social Report,* (Washington: U.S. Department of Health, Education, and Welfare, 1969), p. 72.

quarter in 20 years, and so on."[20]

Geography shares with all scientific disciplines the problem of integrating and interrelating the increasing quantity of technological material and scientific data into a cohesive and meaningful body of knowledge. In the sciences there is an urgent need to apply this knowledge to both the present-day social problems and the future needs of mankind. However, the complexity of many of the societal and institutional problems is such that no single discipline can be expected to solve them satisfactorily. Since almost all complex problems cut across disciplines there is an acute need for greater cooperation and coordination among the physical, biological, and social sciences.

In light of the foregoing assumptions one might rightly ask what geography can contribute to a liberal and general education that no other discipline can provide. As a point of departure let us first consider the terms liberal education and general education. By liberal, we mean that ". . .it should be liberating to the student. It should free the student's mind from shackling preconceptions and lure it in new directions. It should shake habitual thought patterns and puzzle the mind through the introduction of new ideas and problems. In short, it should stimulate intellectual growth."[21] By general, we mean ". . .that it should focus on questions of concern to most thinking men today, questions which are relevant to most of us as life is lived in the. . .Twentieth Century and not questions which excite the specialist only."[22] In essence, ". . .liberal or general education should be relevant to life as it is lived and will be lived by the student."[23]

Geography is an ancient science. Its origins are not precisely known but certainly it predated the well-known written records of early Greek and Roman scholars. One can speculate that geography was "born" when man first ventured from the familiarity of his home and visited some distant place and upon completing his journey made an attempt to explain both the location and distribution of the things he had discovered and the landscapes he had observed. Through the passage of centuries man has continued to exhibit an interest in the location and distribution of both natural and cultural phenomena on the earth's crust. In essence, the core of geography has changed little over the years and even though several traditions can be identified in the study of the discipline, basically all scholars in the field share a common goal: they are primarily interested in discovering, describing, and accounting for the location, distribution, and spatial association of things as they occur on the face of the earth as a whole, or in any part of it.

Modern geography, following the lead set by the physical and biological sciences, is increasingly concerned with problem-solving in an effort to substantiate the notion assumed by all scientists that an order prevails in the world in which we live and that a proper role for science is to demonstrate that order. More and more, classroom students are being asked to assemble and work with raw data, to develop hypotheses about these data, and to search diligently for supporting evidence of the hypotheses just as professional geographers do. Instead of being asked to memorize a body of

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20. Robert B. McNee, "A Proposal for a New Geography Course for Liberal Education: Introduction to Geographic Behavior", *New Approaches in Introductory College Geography Courses*, (Washington: Commission on College Geography, Association of American Geographers, 1967), p. 3.
21. *Ibid.*, p. 1
22. *Loc. Cit.*
23. *Loc. Cit.*

textual information, students are led to ask probing questions about the location and arrangement of man-made and natural phenomena, and to seek answers to these questions by means of map comparison, library research, statistical and mathematical analysis, field work, and reflective thinking. Ideally, this procedure will lead the students to discover the organizing ideas or structure of the discipline while becoming acquainted with the major generalizations, theories and concepts of the field.

During recent years something resembling a quiet revolution has been occurring in geography. Problems once thought to be intractable are now being solved. As Kenneth Boulding recently stated, "Geography is in a state of great intellectual ferment, busy absorbing new methods, especially quantitative methods, on all sides, and quite self-consciously aware of its role as an integrator of many social sciences and natural sciences besides. Of all the disciplies, geography is the one that has caught the vision of the study of the earth as a total system. . ."[24] In light of this philosophy it would appear that the teaching of geography in liberal education must above all else reveal its nature as an instrument whereby man approaches the reality of the physical world and the living beings that inhabit it. In retrospect, the role of geography must be dynamic, changing with the basic shifts in man's scientific understanding of himself and his world.

The role of geography as a subject in liberal education is clearly defined in a recent publication of the Association of American Geographers.[25] A part of that report, "Geography as a Subject in Liberal Education," is particularly relevant to the preceding discussion, and is quoted in full.

> Man is innately curious about places different (or similar) and distant from his local surroundings; but man has no inborn understanding of areas or region, much less of how natural and cultural phenomena are geographically distributed and associated. Such knowledge is acquired only over a period of time, through both extensive experience and formal education. Geography, as the principal discipline concerned with the orderly recognition, analysis and interpretation of spatial patterns on the surface of the earth, assumes the major responsibility for providing such knowledge.
>
> The place of geography as a subject in liberal education may be viewed in terms of three basic approaches to knowledge:
>
> 1) the systematic approach (used primarily by the natural and social sciences), defined largely in terms of the types of objects studied and of the processes that affect them;
> 2) the chronological approach (used primarily by history), concerned with the differentiations of the historical record and the nature of change through time;
> 3) the chorological approach (used primarily by geography), focused upon distributions and associations of terrestrial phenomena in the world as a whole and in particular places, and upon the interrelationship and interaction of these particular places,
>
> The chronological and chorological approaches include the concepts and

24. Kenneth E. Boulding, *The Impact of the Social Sciences,* (New Brunswick: Rutgers University Press, 1966), p. 108.

25. *Geography in Undergraduate Liberal Education,* A Report of the Geography in Liberal Education Project, (Washington: Association of American Geographers, 1965).

objects of the systematic sciences, but deal with them in the framework of time and space, and thus emphasize the temporal and spatial interconnections of diverse elements and processes. Since an appreciation of the fundamental unity of knowledge is a prime objective in liberal education, the geographic approach is an essential component of it.

The study of geography provides other values to liberal education. Among them are the following.

1) It exhibits the causal interrelations of physical, biotic and human phenomena, and shows how these can serve as clues to the origin and function of socio-economic and political processes.
2) It stimulates the observation of pattern, especially regularity in the occurrence of landscape phenomena.
3) It provides the key to understanding the importance of place in human affairs, in historical as well as in contemporary perspective, so that the student sees the present world in context.
4) It cultivates a sense of value relative to man's stewardship of the earth.
5) It fosters the appreciation of differences and similarities from place to place; the geographer views the world as both richer and more significantly complex because it is diverse.
6) It involves the student directly in the study of the real world through map and photo interpretation and field work, and encourages him continually to test abstraction against experience.

Geography is concerned with the study of spatial distributions, associations, and interrelationships. Resulting patterns on the earth's surface have differing meanings for society, according to the techniques and value systems of differing cultures. This appears, in the way different human groups have responded to the same physical environment, and in how any one group has responded to different environments. Techniques and institutions transplanted into different physical environments help to generate new social institutions worked out to fit new needs which, in turn, lead to the formation of new societies with new value systems. The study of spatial distributions, associations, and area interrelationships, i.e. geography, is a basic way of analyzing human society because it casts the fundamental processes which govern man's life on earth in a spatial framework, hopefully offering new views of these processes. Geography, by providing the student with this "spatial awareness," gives a dimension to liberal education without which the study of man on earth is incomplete.[26]

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26. *Ibid.*, pp. 2-3.

A SURVEY OF GEOGRAPHY IN TWO-YEAR COLLEGES

ORGANIZATION, PROCEDURE, AND DATA LIMITATIONS

An assessment of geography's role in the two-year colleges requires, first of all, an accurate measure of its current status. Recommendations concerning needs and ground for improvement can hardly be undertaken before determining how geography now stands, the number of two-year colleges offering geography, what courses are taught, and how well instructors of geography are trained.

With this in mind, the Panel on Geography in the Two-Year Colleges undertook an extensive survey in the winter of the 1968-69 school year. First, a letter was sent to all 855 offices of presidents of two-year schools known to have college transfer programs in the previous year. The 1968 Directory of the American Association of Junior Colleges was used to obtain names and addresses.[1] Each president was asked: 1) to send the panel a catalog if one was available, 2) to indicate if geography was currently being taught at that college, and 3) to give the names of those persons who were instructing geography courses. As soon as members of the panel received the names of those persons teaching geography, a concise one-page questionnaire was mailed to those instructors. After a reasonable lapse of time, one follow-up letter was mailed to those presidents and instructors who had not responded initially.

Questions posed in the questionnaire sent to geography instructors related to their status as a full-time or part-time employee, percent of instructional load in geography, geography courses taught during the 1968-69 academic year and approximate student enrollments, four-year institutions to which their students were most likely to transfer, degrees they had earned, whether or not they had majored or minored in geography, and the number of hours of geography taken in each program. The questionnaire is shown as Figure 3.

The survey was made primarily to obtain needed information about the distribution of two-year colleges offering geography, the kinds of courses being offered, and the academic background of the instructors of geography courses. The survey was not intended to provide detailed data on the geography curriculum in the two-year colleges and on articulation between two- and four-year college programs.

The number of responses received from the presidents and instructors teaching courses in geography was sufficient to give the fairly complete and comprehensive perspective the panel needed to carry out other parts of the study. Replies were received from 77 percent of the 855 presidents contacted. It is suspected that relatively few of the institutions not answering offer geography. Many of these are very small schools, often church-related colleges with limited programs. Of the 528 persons ascertained to be teaching geography, 388 (73 percent) returned questionnaires. Again, it is felt that those persons not replying are more likely to be those only partially involved in geography, perhaps holders of degrees in other fields.

Although it was not possible for the panel to obtain a 100 percent response with the resources available, the high rate of replies received and analyzed does mean that fairly representative and complete information about geography in the two-year colleges was obtained. No serious gaps in returns from a particular state or region of the country could be detected when the data were compiled. Instructors with limited training in geography might have neglected to reply more frequently than those who

1. William A. Harper (ed.), *1968 Junior College Directory* (Washington: American Association of Junior Colleges, 1968).

FIGURE 3

QUESTIONNAIRE

PANEL ON GEOGRAPHY IN THE TWO-YEAR COLLEGES
COMMISSION ON COLLEGE GEOGRAPHY

Name _____ College _____

Are you a full time employee at this college? Yes _____ No _____

What portion of your instructional load this term is in Geography? _____

What Geography courses are you teaching during the current academic year (September to June)?

Course Name	Approximate, actual, or anticipated enrollment		
	First Quarter or Semester	Second Quarter or Semester	Third Quarter

To what four-year institution or institutions do most of the prospective transfer students enrolled in your courses actually transfer:

1. _____ 3. _____

2. _____ 4. _____

DEGREES RECEIVED

A.B. or B.S. awarded (Date) _____ (College) _____

(Major) _____ (Minor(s) _____

Semester hours of Geography taken _____

M.A., M.S., M.Ed., or other Master's awarded (Date) _____

(College) _____

(Major) _____ (Minor(s) _____

Semester hours of Geography taken _____

Ph.D. or Ed.D. awarded (Date) _____ (College) _____

(Major) _____ (Minor(s) _____

Semester hours of Geography taken _____

Other related education and/or experience: (Please use reverse side if necessary).

felt themselves well-trained to teach geography. However, since numerous replies were received from instructors having little or no training in geography, this possible bias does not seem to be too serious.

GEOGRAPHY'S REPRESENTATION

Responses from the offices of college presidents indicated that 407 two-year schools offered one or more geography courses during the 1968-69 school year. This is out of a total of 855 schools known to have college-transfer programs. While 199 of the 855 schools contacted did not respond to the questionnaire, the panel presumes that most of the 199 do not offer geography. Thus, geography is represented in just under half of the nation's junior colleges.

The distribution of geography's representation is generally a function of the strength of the junior college movement. Where the two-year colleges are strongest, geography enjoys a high level of representation in school curricula. For example, in California geography is offered in 67 of the 87 schools, in Florida 26 of 29, in Illinois 35 of 45, and in Michigan 23 of 31. On the other hand, in many states where there are relatively few junior colleges geography is often poorly represented (see Table I).

Regionally, geography is best represented in the junior colleges of the West and Southwest (136 of 243 schools) and Southeast (114 of 195). It has somewhat above average representation in the Great Lakes and Plains (109 of 208), and fares most poorly in the North Atlantic area (48 of 209). In absolute terms, the West, Southwest, and Southeast claim 250 two-year colleges offering geography, 61 percent of the nation's total. This same part of the country has 59 percent of the junior college geography instructors.

The states with the largest number of junior college geography teachers are California (104), Illinois (44), Michigan (41), Texas (31), Florida (30), Mississippi (22), and North Carolina (20). On the other hand there are seven states with no such instructors, and 26 with three or fewer instructors. The unevenness of geography's contribution in itself points up the unrealized potential for growth, especially in the North Atlantic area.

PROFILE OF GEOGRAPHY COURSES TAUGHT

An examination of the kinds of geography courses taught provides one basis for evaluating the character and position of geography in the nation's two-year colleges. In itself, it tells only part of the story, because the mere offering of courses is neither necessarily related to the quality of instruction nor to the general position of geography in any individual institution. Some colleges, with impressive lists of geography courses in their programs, may or may not staff these courses with persons prepared to teach them. Still, it was reasoned that an awareness of the kinds of geography courses presented is essential to appraise the overall role of geography in the junior colleges, to observe regional differences in its development, and to note opportunities for growth and improvement.

Table II presents a statistical profile of courses taught as ascertained from the mail questionnaire survey. All courses described by respondents were placed in one of seven categories. This seven-category classification as it appears in Table II was based upon the panel's experience in the teaching of geography at the freshman and sophomore levels. In examining returned questionnaires, the scope of the courses listed by respondents was usually clear. Where there was doubt as to category, the college catalog, provided by most college presidents' offices, was consulted for a

TABLE I

GENERAL CHARACTERISTICS OF GEOGRAPHY IN TWO-YEAR COLLEGES, 1968-69

Region and State	College Contacted[1]			Number of Geography Instructors			Full-time Employee of School[2]		Instruction in Geography as Equated to Full Time Load[2,3]			Colleges Offering Geography[2]		
	Letters Sent	Responses	Percent	Reported by College	Responses	Percent	Yes	No	Less Than 40%	40%– 80%	More Than 80%	Public	Private	Total
United States Total	855	656	77	528	388	74	355	33	156	121	111	342	65	407
North Atlantic	209	174	83	64	47	73	41	6	21	14	12	35	13	48
Connecticut	19	14	74	3	3	100	3	0	3	0	0	2	1	3
Delaware	3	3	100	1	1	100	1	0	1	0	0	0	1	1
District of Columbia	3	3	100	2	1	50	0	1	1	0	0	0	2	2
Maine	2	2	100	0	0	0	0	0	0	0	0	0	0	0
Maryland	18	14	78	16	11	69	10	1	3	3	5	11	0	11
Massachusetts	30	23	77	7	6	86	5	1	2	3	1	4	2	6
New Hampshire	5	3	60	0	0	0	0	0	0	0	0	0	0	0
New Jersey	15	14	93	4	3	75	1	2	1	1	1	1	2	3
New York	57	49	86	13	7	54	7	0	2	4	1	6	1	7
Pennsylvania	49	42	86	16	13	81	12	1	7	2	4	10	3	13
Rhode Island	3	2	68	1	1	100	1	0	0	1	0	1	0	1
Vermont	5	5	100	1	1	100	1	0	1	0	0	0	1	1
Great Lakes & Plains	208	146	70	147	116	79	105	11	36	36	44	91	18	109
Illinois	45	40	89	44	39	89	34	5	9	19	11	32	3	35
Indiana	3	2	67	1	1	100	1	0	0	0	1	1	0	1
Iowa	22	10	46	7	6	86	4	2	2	3	1	4	3	7
Kansas	21	15	71	9	6	67	4	2	3	1	2	7	2	9
Michigan	31	27	87	41	33	81	32	1	5	4	24	21	2	23
Minnesota	21	14	67	15	10	67	9	1	6	2	2	11	1	12
Missouri	21	18	86	14	12	86	12	0	6	5	1	7	4	11
Nebraska	7	4	57	3	2	67	2	0	2	0	0	2	0	2
North Dakota	6	3	50	2	1	50	1	0	1	0	0	0	1	1
Ohio	8	4	50	2	1	50	1	0	1	0	0	1	1	2
South Dakota	3	1	33	1	1	100	1	0	1	0	0	0	1	1
Wisconsin	20	8	40	8	4	50	4	0	0	2	2	5	0	5

TABLE I

GENERAL CHARACTERISTICS OF GEOGRAPHY IN TWO-YEAR COLLEGES, 1968-69

	Colleges Contacted[1]			Number of Geography Instructors			Full-time Employee of School[2]		Instruction in Geography as Equated to Full Time Load[2,3]			Colleges Offering Geography[2]		
	Letters Sent	Responses	Percent	Reported by College	Responses	Percent	Yes	No	Less Than 40%	40% – 80%	More Than 80%	Public	Private	Total
Southeast	195	168	86	127	77	61	72	5	41	28	8	85	29	114
Alabama	20	18	90	18	10	56	10	0	7	2	1	14	2	16
Arkansas	7	5	71	3	2	67	2	0	2	0	0	3	0	3
Florida	29	29	100	30	21	70	21	0	7	11	3	25	1	26
Georgia	22	22	100	15	10	67	10	0	7	3	0	7	5	12
Kentucky	17	13	77	9	5	56	5	0	4	1	0	5	3	8
Louisiana	1	1	100	0	0	0	0	0	0	0	0	0	0	0
Mississippi	27	20	74	22	10	45	10	0	6	4	0	14	5	19
North Carolina	25	23	92	20	13	65	10	3	5	5	3	9	8	17
South Carolina	11	8	73	2	2	100	0	2	0	2	0	2	0	2
Tennessee	9	7	78	3	1	33	1	0	0	0	1	3	2	5
Virginia	22	19	86	2	1	50	1	0	1	0	0	1	2	3
West Virginia	5	3	60	3	2	67	2	0	2	0	0	2	1	3
West & Southwest	243	168	69	190	148	78	137	11	58	43	47	131	5	136
Alaska	7	4	57	0	0	0	0	0	0	0	0	0	0	0
Arizona	5	4	80	4	4	100	3	1	2	1	1	4	0	4
California	87	67	77	104	84	81	80	4	24	29	31	67	0	67
Colorado	11	5	45	6	6	100	6	0	1	2	3	5	0	5
Hawaii	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	5	2	40	2	2	100	2	0	0	2	0	1	1	2
Montana	3	1	33	0	0	0	0	0	0	0	0	0	0	0
Nevada	1	0	0	0	0	0	0	0	0	0	0	0	0	0
New Mexico	6	4	67	3	1	33	1	0	1	0	0	1	0	1
Oklahoma	17	9	53	12	9	75	8	1	8	1	0	6	1	7
Oregon	15	9	60	9	8	90	6	2	3	2	3	7	1	8
Texas	52	42	81	31	20	65	19	1	14	4	2	26	2	28
Utah	3	2	67	3	2	67	2	0	2	0	0	2	0	2
Washington	22	16	73	14	11	79	9	2	3	2	6	11	0	11
Wyoming	6	3	50	2	1	50	1	0	0	0	1	1	0	1

1. From 1968 Directory, American Association of Junior Colleges. Includes only two-year colleges having college parallel programs.
2. Based on questionnaires returned.
3. Assumes 15-hour load.

TABLE II

PROFILE ON GEOGRAPHY COURSES TAUGHT IN TWO-YEAR COLLEGES, 1968-69[1]

State and Region	Total		World Regional		Economic		Physical		Cultural, Human, Social, Etc.		Beginning Principles, Elements & other Introductory		Regional		Other[2]	
	Number of Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment
United States Total	636	62761	151	16837	86	5217	151	20111	77	10113	79	6125	53	2737	39	1621
North Atlantic	87	5536	12	1277	17	692	11	892	14	954	19	1230	11	411	3	80
Connecticut	4	155	0	0	1	30	0	0	1	34	1	31	0	0	1	60
Delaware	2	0	2	ND	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Maine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	33	1331	3	36	6	141	6	523	4	368	7	114	5	129	2	20
Massachussetts	11	542	0	0	2	90	0	0	3	80	4	296	2	76	0	0
New Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Jersey	5	462	0	0	1	40	1	49	3	373	0	0	0	0	0	0
New York	8	714	1	125	2	95	0	0	2	69	3	425	0	0	0	0
Pennsylvania	21	2152	6	1116	4	146	4	320	0	0	3	364	4	206	0	0
Rhode Island	1	150	0	0	1	150	0	0	0	0	0	0	0	0	0	0
Vermont	1	30	0	0	0	0	0	0	1	30	0	0	0	0	0	0
Great Lakes & Plains	215	19378	57	5988	30	1602	53	6557	13	1708	21	1966	25	1207	16	350
Illinois	80	7100	29	2750	10	600	21	1850	2	100	6	1000	9	750	3	50
Indiana	4	355	1	60	1	60	2	235	0	0	0	0	0	0	0	0
Iowa	7	335	4	252	1	25	0	0	0	0	0	0	1	18	1	40
Kansas	7	300	1	50	1	20	1	100	0	0	4	130	0	0	0	0
Michigan	63	6711	12	1545	10	499	13	2949	4	870	7	418	12	317	5	113
Minnesota	15	1962	2	595	2	160	5	437	5	680	0	0	1	90	0	0
Missouri	18	1300	4	300	3	200	5	475	0	0	3	300	0	0	3	25
Nebraska	2	120	1	90	0	0	1	30	0	0	0	0	0	0	0	0
North Dakota	1	20	0	0	0	0	0	0	1	20	0	0	0	0	0	0
Ohio	1	118	0	0	0	0	0	0	0	0	1	118	0	0	0	0
South Dakota	2	25	1	15	0	0	1	10	0	0	0	0	0	0	0	0
Wisconsin	15	1032	2	331	2	38	4	471	1	38	0	0	2	32	4	122

TABLE II

PROFILE ON GEOGRAPHY COURSES TAUGHT IN TWO-YEAR COLLEGES, 1968-69[1]

State and Region	Total		World Regional		Economic		Physical		Cultural, Human. Social, Etc.		Beginning Principles, Elements & other Introductory		Regional		Other[2]	
	Number of Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment	Courses	Enrollment
Southeast	111	8703	42	4253	7	355	22	1572	5	491	21	1521	6	285	8	226
Alabama	16	1333	5	576	2	173	3	259	2	107	0	0	3	153	1	65
Arkansas	1	50	0	0	0	0	0	0	0	0	1	50	0	0	0	0
Florida	31	3712	17	2472	0	0	5	744	0	0	2	253	2	132	5	111
Georgia	10	867	6	458	0	0	1	8	2	354	1	47	0	0	0	0
Kentucky	10	139	3	76	1	ND	2	ND	0	0	3	63	1	0	0	0
Louisiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mississippi	10	997	3	420	0	0	0	0	0	0	7	577	0	0	0	0
North Carolina	23	1042	7	199	3	138	7	239	1	30	5	436	0	0	0	0
South Carolina	4	130	0	0	0	0	2	80	0	0	0	0	0	0	2	50
Tennessee	2	264	1	52	0	0	1	212	0	0	0	0	0	0	0	0
Virginia	1	70	0	0	0	0	0	0	0	0	1	70	0	0	0	0
West Virginia	3	99	0	0	1	44	1	30	0	0	1	25	0	0	0	0
West and Southwest	223	29144	40	5319	32	2568	65	11090	45	6960	18	1408	11	834	12	965
Alaska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arizona	6	795	1	300	2	225	3	270	0	0	0	0	0	0	0	0
California	127	20590	18	3230	19	1120	44	9460	29	5130	3	420	5	360	9	870
Colorado	11	815	1	120	0	0	2	168	2	240	1	50	3	202	2	35
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	3	390	1	120	0	0	2	270	0	0	0	0	0	0	0	0
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Mexico	1	40	0	0	0	0	0	0	0	0	1	40	0	0	0	0
Oklahoma	11	1190	1	30	1	100	2	60	7	1000	0	0	0	0	0	0
Oregon	13	1335	4	670	1	210	5	290	2	115	1	50	0	0	0	0
Texas	25	1598	7	480	5	293	2	62	2	85	8	558	1	120	0	0
Utah	2	165	1	25	0	0	0	0	0	0	0	0	1	140	0	0
Washington	21	1924	6	344	4	620	4	240	2	370	4	290	0	0	1	60
Wyoming	3	302	0	0	0	0	1	270	1	20	0	0	1	12	0	0

1. Excludes summer sessions. Based on questionnaires returned.
2. Includes courses in weather and climate, conservation, geographic techniques, etc.

more precise description. Still, there were a few instances where the classification of a course was somewhat arbitrary. For example, a course described as "world cultural geography" could be assigned to the "world regional" or "cultural, human, social, etc." categories. This is not surprising, since there are many ways of organizing an introductory geography course, and the subject matter in each case is not exclusive.

Included in the tables are only those courses actually given during the 1968-69 school year. Courses listed in catalogs but not taught are excluded. The same course offered two successive semesters at any one institution is listed only once. Similarly, a course for which three sections may be offered one semester is listed as a single course. Summer school offerings are excluded. As a result, Table II lists the number of schools in each state that actively offered a particular kind of course during the regular 1968-69 school year, together with the total enrollments reported by instructors for those courses.

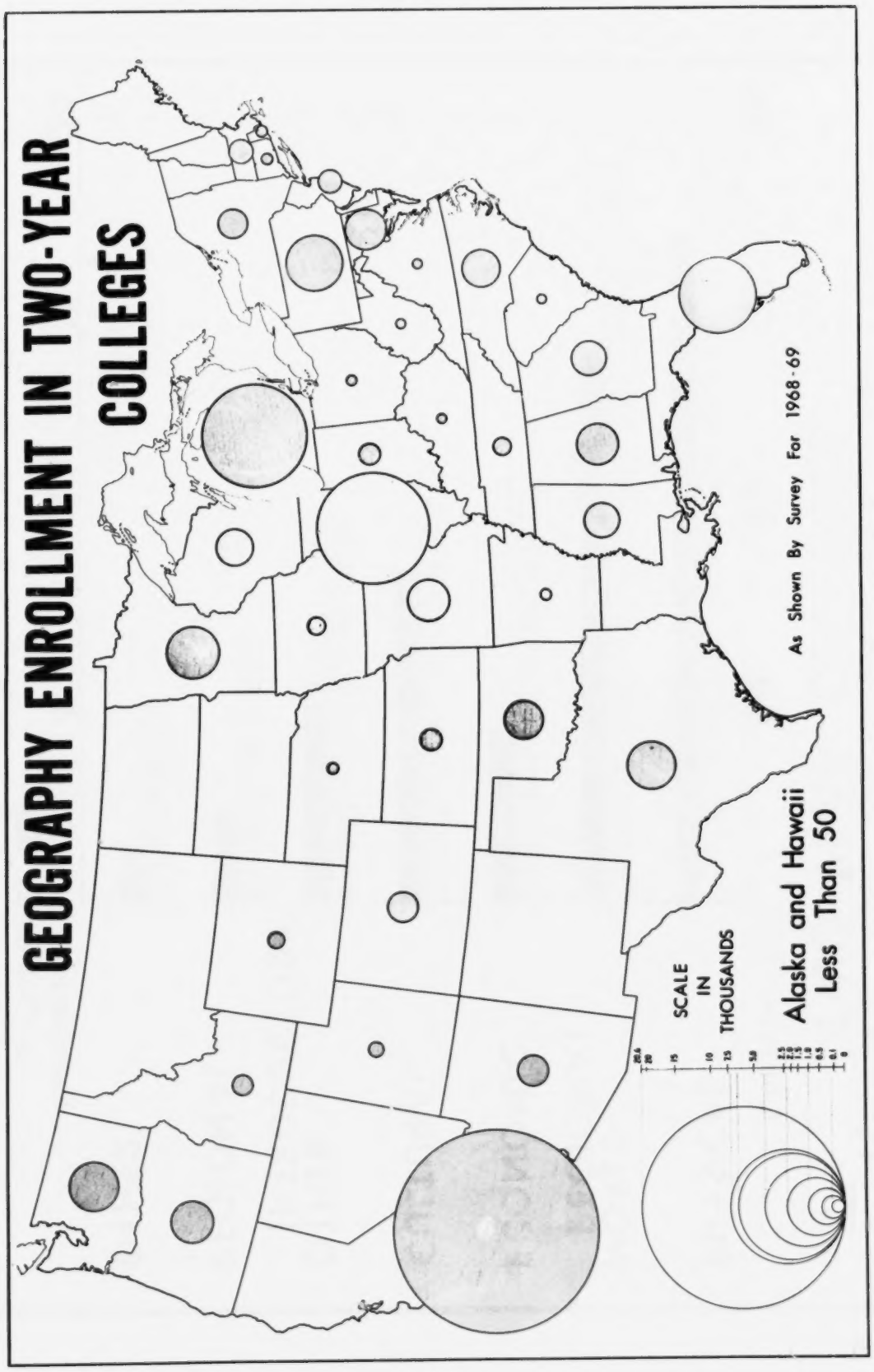
A note of caution is in order for those examining the data in Table II. The statistics are inevitably incomplete, and they should be used only for comparative purposes, such as comparing enrollments in one course with those of another, or for comparing enrollments in one state with another. The absolute figures are low. As noted previously, of the colleges contacted initially, 77 percent replied. Of the geography teachers listed by Presidents, 73 percent returned questionnaires. Furthermore, a significant number of responding instructors indicated what courses they taught but failed to indicate enrollments. If one had to estimate the extent to which these figures are below the "actual" ones, a reasoned guess would be that Table II figures on the number of courses are about 65 to 70 percent of actual, and figures on enrollments are about half the actual count. While the "lack of response" was not absolutely uniform geographically, the regional differences were not great enough to preclude the use of the figures for *comparative* purposes.

Four courses–physical, world regional, cultural, and economic–account for 82 percent of the total geography enrollments in the nation's junior colleges. The same courses represent 73 percent of all courses taught. Their prominence is not surprising, as these are the geography courses most likely to be found at the lower division level in four-year colleges and universities (see Figures 4 and 5).

The most "popular" of all junior college geography courses is physical geography. It accounts for almost one-third of all enrollments. Its leading position can be directly attributed to its preeminent position in California and Michigan, the first- and third-ranking states in total junior college geography enrollments. It also leads in Maryland, Missouri, Wisconsin, and Tennessee. The popularity of this course probably reflects, at least in part, the traditional idea that geography examines man-land relationships, and therefore the first step in the study of geography is to appreciate the character of the physical environment as the "stage" on which the drama of cultural geography unfolds. While some persons question the wisdom of presenting physical geography as the "first" and perhaps only geography course a student takes, most would agree that physical geography has an important and proper place in freshman sophomore-level geographic education.

A close second in popularity is world or world regional geography, a venerable title for the introductory general survey course. It dominates the junior college picture in Illinois and Florida (the second- and fourth-ranking states in junior college geography enrollments) as well as in Alabama, Oregon, Pennsylvania, and Texas, and it is also relatively strong in California and Michigan. The content of world geography courses is variable, but in most instances there is an attempt at world regional coverage to provide students with a broad introduction to the world around

FIGURE 4


GEOGRAPHY ENROLLMENT IN TWO-YEAR COLLEGES
SCALE IN THOUSANDS
Alaska and Hawaii Less Than 50
As Shown By Survey For 1968-69

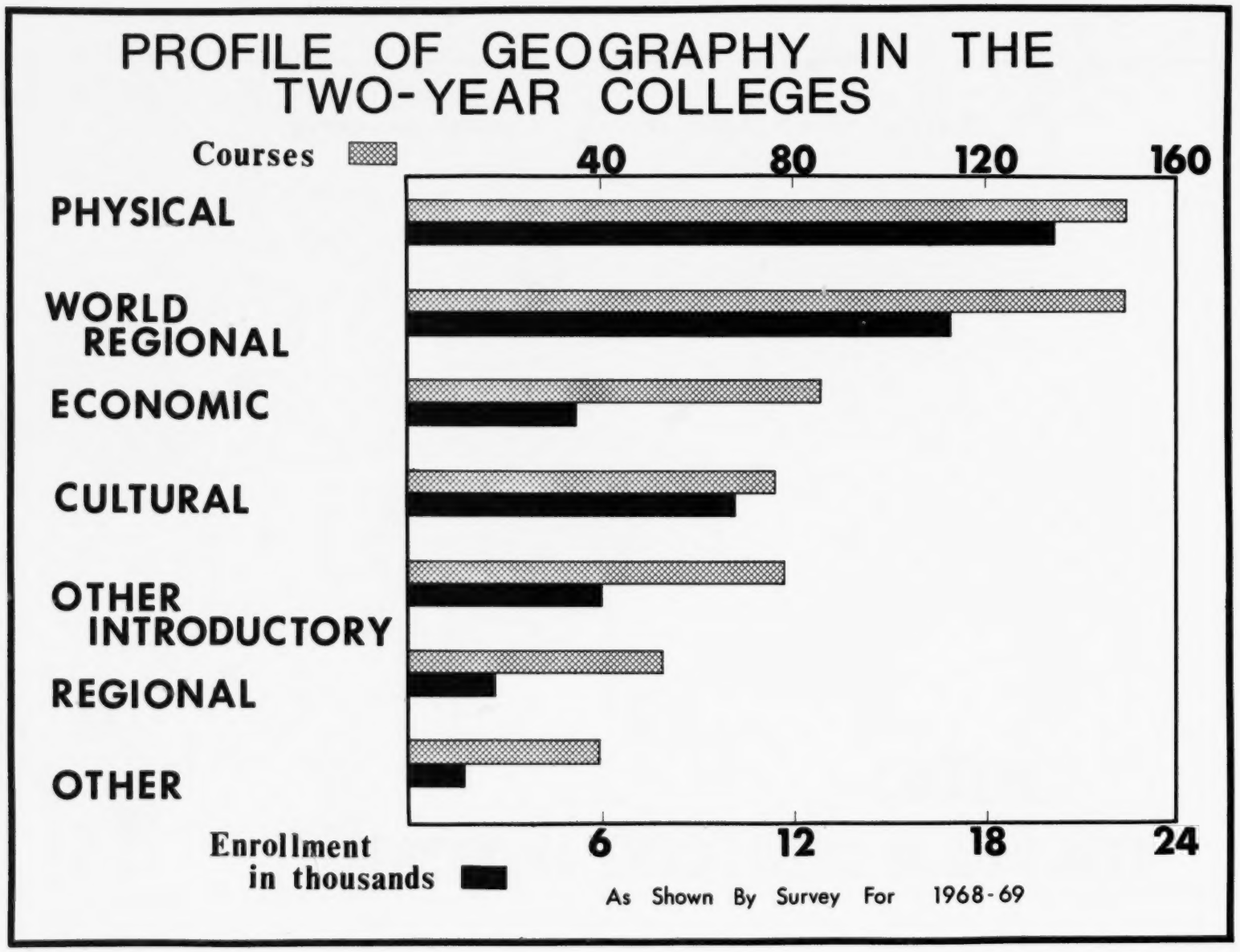

PROFILE OF GEOGRAPHY IN THE TWO-YEAR COLLEGES
Courses
40
80
120
160
PHYSICAL
WORLD REGIONAL
ECONOMIC
CULTURAL
OTHER INTRODUCTORY
REGIONAL
OTHER
Enrollment in thousands
6
12
18
24
As Shown By Survey For 1968-69

FIGURE 5

them. Often a paramount theme is the role of the physical environment in helping to explain diverse patterns of human activity. Or, the focus may be on the distinctive sets of physical, historical, social, and economic conditions found in the various countries of the world. The course is usually organized on the basis of natural regions, continents, or culture worlds.

Cultural geography (or human or social geography) occupies a fairly strong position, with about one-half the courses and enrollments claimed by physical geography. The secondary position of cultural as opposed to physical geography is essentially a national phenomenon, but it is unusually pronounced in some of the leading junior college states, particularly Florida, Michigan, and Illinois. California can claim half the nation's two-year college enrollments in cultural geography, but even here it is a distant second to physical geography, and usually follows as the second course in the year sequence. In only a few states does cultural geography clearly dominate over physical–Georgia, Oklahoma, and New Jersey. Cultural geography courses vary in content from those where the focus is on global differences in cultural processes to those where the dominant theme is man-land relationships. When the course is taught by persons trained as historians, there often emerges a kind of geographical basis of history, sometimes with an unfortunate flavor of environmental determinism.

Economic geography is another of the leading thematic courses, ranking third in the number of courses taught and fifth in enrollment. In Washington, which has a new junior college program, it is the leading geography course. Most of the courses appear to emphasize the "world survey" approach, with a commodity-by-commodity or country-by-country analysis of the location of primary and secondary economic acrivities.

Another category, rather general in scope, includes such miscellaneous course titles as "introductory," "beginning," "principles," and "elements." Presumably many of these are similar in scope and content to one or more of the previously described courses, but with a different designation. After all, most of the courses here discussed are introductory in nature, and many of them probably share a number of common themes and subject matter coverage. While some teachers of the "principles of geography" courses in fact organize the material around a selected set of principles, other instructors may cite examples of certain principles in the process of examining locations and distributions.

A number of other courses command some attention. Regional courses of the United States or Anglo-America are offered, particularly in Illinois, Pennsylvania, and Michigan. Those concerned with individual states ("The Geography of Michigan") are found in California, Michigan, Maryland, Minnesota, and Colorado. Among the courses included in the "other" column of Table II is weather and climate, taught as a separate course in some California schools. Four courses in conservation were given in Florida, but no more than one in a handful of other states. Michigan offered four "travel" courses, and a few states included cartography and other "technique" courses in their curricula.

It should be observed at this point that the panel's findings concerning types of courses offered and relative enrollments are generally similar to those in two other recent surveys. A preliminary study under the auspices of the Commission on College Geography[2] estimated geography enrollments in junior colleges at 48,000 for the

2. Richard Hecock, "Geography in the Junior Colleges," Commission on College Geography, Eastern Michigan University, 1967 (unpublished).

1966-67 year.[3] In their survey the leading courses, in order of enrollment were physical, world regional, cultural, economic, and "principles or systematic." Curiously, economic geography was offered by more schools than any other course. Another survey, using a stratified, random sample of 147 two-year colleges was conducted by the Department of Secondary Education at Auburn University for the 1967-68 year.[4] They found that the courses "most often offered by two-year colleges" were 1) physical, 2) world regional, 3) economic, 4) introduction to geography, and 5) cultural.

In summary, the profile of courses taught in the nation's two-year colleges is similar to that found on the lower division level in four-year colleges, with a strong emphasis on such traditional introductory themes as physical, cultural, world regional, and economic geography. The dominance of these courses, both in states where junior college geography is well-developed and in other states, suggests that the subjects and themes long associated with introductory geography are likely to endure for some time. For the most part, it appears that growth and improvement will take place within the framework of courses which currently occupy commanding positions within the curricula.

Another observation clearly points up the unrealized potential of geography in a great many areas of the country. In numerous states, even some of those where geography is well-developed in the junior colleges, certain courses are poorly represented in the curricula. In other states, where junior colleges exist but comparatively little geography is offered, the challenge and the unfulfilled potential are even greater.

PROFILE OF INSTRUCTORS

Employment of staff on a full-time basis for instruction in a single discipline is generally considered to be the most effective instructional arrangement. Nearly all geography instructors in two-year colleges are working on a full-time basis. Less than a tenth of those responding to the panel's questionnaire were employed only part of the time. However, geography constituted less than 40 percent of the teaching load for 40 percent of those instructors teaching geography courses who responded to the questionnaire. For 31 percent, instruction in geography comprised from 40 to 80 percent of the total instructional load. Only 29 percent had teaching loads with more than 80 percent of the total load in geography (see Table I).

Regionally, a higher proportion of the geography instructors are employed on a part-time basis in the North Atlantic States. In the North Atlantic region 13 percent were employed only part-time while for the Great Lakes and Plains, West and Southwest, and the Southeast States, the percentages were 10, 8, and 7, respectively.

Geography constituted more than 80 percent of the teaching load for 38 percent of the instructors in the Great Lakes and Plains States, but for only a tenth of the geography instructors in the Southeast. In the West and Southwest, 32 percent of the instructors had more than 80 percent of their load in geography, and for the North Atlantic States, 26 percent were teaching geography more than 80 percent of the

3. The lower figure for 1966-67, compared with the 62,761 enrollments for 1968-69 in the present survey, may be partially explained by the approximately 175 new public junior colleges which opened doors in the two-year interval.

4. As reported in a May 22, 1969, letter to H. Lynn Sheller, President of Fullerton Junior College, Fullerton, Calif., from Prof. Floyd C. Robertson, Department of Secondary Education, Auburn University, Alabama.

time.

Conversely, the Great Lakes and Plains States had the lowest proportion of the geography instructors teaching courses other than geography, with only 31 percent of the geography instructors so engaged. In the Southeast 53 percent of the geography instructors were teaching geography less than 40 percent of their time. The North Atlantic and West and Southwest States had 45 and 40 percent, respectively, so engaged.

Among the states leading in the number of geography instructors in the two-year colleges, Michigan had the highest percentage of the instructors teaching geography more than 80 percent of the time with 73 percent so employed. This compared to 28 percent in Illinois, 14 percent in Florida, and 10 percent in Texas.

Nearly all instructors of geography courses offered in the two-year colleges have been awarded a master's degree. About two-fifths of those geography instructors with a master's degree have majored in geography and another tenth of them have a minor in the discipline. About a third of those teaching geography have taken graduate work beyond the master's degree but less than a tenth have received the doctorate. Only 11 persons of those returning questionnaires to the panel hold their doctorates in geography. Eight others have a minor in geography at the doctoral level (see Table III).

Regionally, the Great Lakes and Plains States and the West and Southwest States had the highest percentage of instructors with majors in geography at the master's level, these groups of states having 49 and 47 percent, respectively. In the North Atlantic States 39 percent, and in the Southeast only 26 percent, of the geography instructors majored in geography while completing the master's degree. Among the states having the most geography instructors, Michigan led with 70 percent of the geography instructors majoring in geography and completing the master's degree. California was next with 60 percent, Illinois had 58 percent, and Florida had 43 percent.

Of course when the negative side is stated, it must be stressed that many of those now teaching geography in the two-year colleges are doing so without the advantage of adequate professional training equivalent to a major or a minor in the discipline. Less than a major at the level of the bachelor's degree not only gives the instructor of geography course a lack of depth but also a lack of breadth in the subject. In other instances instructors have been able through related work, travel, and other experience to enhance their background for effective geography instruction. Yet another fairly common problem faced by instructors of geography courses in two-year colleges is the lack of opportunity to keep abreast of new developments in geography. Even though many dedicated instructors regularly return to the university to take courses, the courses available, particularly during the summer session, are not those most likely to meet the specific needs of the instructor of introductory courses.

TABLE III

PROFILE OF GEOGRAPHY INSTRUCTORS IN TWO-YEAR COLLEGES, 1968-69[1]

Region and State	Total Number of Responses	BACHELOR'S			MASTER'S			Post-Master's Non-Degree	DOCTORATE		
		Total	Geography Major	Geography Minor	Total	Geography Major	Geography Minor	Total	Total	Geography Major	Geography Minor
United States Total	388	388	113	68	367	156	42	104	29	11	8
North Atlantic	47	47	10	8	44	17	5	18	5	4	1
Connecticut	3	3	0	2	3	0	1	0	0	0	0
Delaware	1	1	0	0	1	0	0	0	0	0	0
District of Columbia	1	1	1	0	1	1	0	0	1	0	1
Maine	0	0	0	0	0	0	0	0	0	0	0
Maryland	11	11	4	3	11	7	3	3	3	3	0
Massachusetts	6	6	0	0	6	1	1	4	0	0	0
New Hampshire	0	0	0	0	0	0	0	0	0	0	0
New Jersey	3	3	1	0	1	1	0	1	0	0	0
New York	7	7	0	1	7	0	0	4	0	0	0
Pennsylvania	13	13	4	2	13	7	0	6	1	1	0
Rhode Island	1	1	0	0	1	0	0	0	0	0	0
Vermont	1	1	0	0	0	0	0	0	0	0	0
Great Lakes and Plains	116	116	49	24	110	54	16	36	7	2	2
Illinois	39	39	20	7	36	21	3	12	3	1	1
Indiana	1	1	1	0	1	1	0	0	0	0	0
Iowa	6	6	1	1	5	1	1	0	0	0	0
Kansas	6	6	0	4	6	0	0	2	0	0	0
Michigan	33	33	19	8	33	23	5	12	1	1	0
Minnesota	10	10	0	3	10	2	2	3	1	0	0
Missouri	12	12	6	1	12	3	4	5	2	0	1
Nebraska	2	2	0	0	2	0	0	0	0	0	0
North Dakota	1	1	0	0	0	0	0	0	0	0	0
Ohio	1	1	0	0	0	0	0	0	0	0	0
South Dakota	1	1	0	0	1	0	0	0	0	0	0
Wisconsin	4	4	2	0	4	3	1	2	0	0	0

TABLE III

PROFILE OF GEOGRAPHY INSTRUCTORS IN TWO-YEAR COLLEGES, 1968-69[1]

Region and State	Total Number of Responses	BACHELOR'S			MASTER'S			Post-Masters Non-Degree	DOCTORATE		
		Total	Geography Major	Geography Minor	Total	Geography Major	Geography Minor	Total	Total	Geography Major	Geography Minor
Southeast	77	77	13	14	74	19	9	4	6	0	2
Alabama	10	10	0	4	10	1	2	0	0	0	0
Arkansas	2	2	0	0	2	0	0	0	0	0	0
Florida	21	21	8	2	21	9	3	0	1	0	0
Georgia	10	10	0	3	10	3	1	0	2	0	1
Kentucky	5	5	0	3	5	0	2	1	0	0	0
Louisiana	0	0	0	0	0	0	0	0	0	0	0
Mississippi	10	10	2	0	9	1	0	0	0	0	0
North Carolina	13	13	1	1	12	2	1	3	1	0	0
South Carolina	2	2	2	0	2	2	0	0	0	0	0
Tennessee	1	1	0	1	1	1	0	0	0	0	0
Virginia	1	1	0	0	0	0	0	0	1	0	0
West Virginia	2	2	0	0	2	0	0	0	1	0	1
West and Southwest	148	148	41	22	139	66	12	46	11	5	3
Alaska	0	0	0	0	0	0	0	0	0	0	0
Arizona	4	4	1	2	4	2	0	1	1	0	1
California	84	84	29	12	78	47	3	29	6	5	0
Colorado	6	6	2	1	5	2	0	3	0	0	0
Hawaii	0	0	0	0	0	0	0	0	0	0	0
Idaho	2	2	0	0	2	1	0	1	0	0	0
Montana	0	0	0	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0
New Mexico	1	1	0	0	1	0	0	1	0	0	0
Oklahoma	9	9	0	1	8	1	0	3	1	0	0
Oregon	8	8	3	0	8	5	1	1	0	0	0
Texas	20	20	2	0	20	0	5	3	2	0	1
Utah	2	2	0	1	2	0	0	0	1	0	1
Washington	11	11	3	5	10	7	3	4	0	0	0
Wyoming	1	1	1	0	1	1	0	0	0	0	0

1. Based on quetionnaires returned.

INTRODUCTORY COURSES IN TWO-YEAR COLLEGES

The survey results outlined in the previous chapter indicate that introductory courses in geography generally correspond to the trends encountered in four-year institutions. This suggests that geography as a discipline focuses upon the two-year college transfer student much more than it does upon the terminal student. The panel, aware of recommendations from interested professionals from both the two- and four-year institutions, recognizes that what exists is not necessarily what should be. Most two-year schools service more terminal students than transfers, yet in some large-city institutions as many as ninety percent of the entering students plan to transfer to a four-year school.

Thus the dilemma remains. Should the themes developed and principles and facts presented in introductory courses provide for the general education of the transfer student, the terminal student, or both? Should the material be oriented to professional needs of students earning baccalaureates rather than toward general education? Should this be accomplished through differing courses or in single courses? The themes and ideas developed in practice, primarily for the transfer student, are treated separately in this chapter under four course headings. But before proceeding to these, it is important to examine some other considerations.

THE SPECIAL NEEDS OF THE TERMINAL STUDENT

Many themes of a geographical nature could be developed for the general education of the terminal student. They could be included in a more generalized version of existing transfer courses, or in a separate course designed to provide material more relevant for the terminal student. Some examples might include generalized and less rigorous courses in world resources, ecological patterns of earth environments, geography and world affairs, or political patterns in urban systems. One two-year school in California requires a "world patterns" general education course as a part of a terminal program for potential stewardesses and other air lines employees. Another program includes a dual purpose course in urban political patterns, suitable for both the transfer and the terminal student.

Various writers proposed new viewpoints and themes for college geography in Publication No. 5 of the Commission on College Geography series. One of the writers noted that urbanism was an extremely pertinent research and teaching area in today's society.[1] This theme could, for example, be combined with political geography to produce a course of great general education value. There is undoubtedly sufficient material both from geography and from other disciplines to organize an urban political course. With the increasingly urban character of our society, urban environments rate a high priority as objects of research with theoretical and practical applications. This urban focus would be relevant for the transfer student as well as for those majoring in such terminal areas as auto mechanics, architectural drawing, and cosmetology. All future citizens of our expanding urban complexes need to understand better the various approaches to problems of air pollution, slum and ghetto conditions, zoning ordinances, commuter versus rapid transit facilities, and similar problems with which they will be confronted as citizens. These are problems of increasing magnitude and complexity, and geographers are making contributions

1. Robert B. McNee, "A Proposal for a New Geography Course for Liberal Education: Introduction to Geographic Behavior," *New Approaches in Introductory College Geography Courses,* (Washington : Commission on College Geography, Association of American Geographers, 1967), p.20.

toward a better understanding of them. If one accepts the idea that our survival depends upon an enlightened and literate citizenry, then such a course might be most appropriate at the freshman level. It could provide an exciting, contemporary, and pragmatic approach to geography.

There are other appropriate themes in introductory geography courses for the professional education of the terminal student. These could include materials pertaining to cartography, urban and regional planning, urban redevelopment and public housing, recreation, travel planning, and conservation. One of the more elaborate geography programs in a two-year school is the one at San Bernardino Valley College in California which includes separate certificate programs in urban redevelopment-public housing and urban-regional planning, as well as programs in both geography and cartography fully capable of placing terminal students as well as transfers. San Bernardino Valley College's program provides an unusually encouraging example. Since the terminal student is still in the majority in most two-year colleges, geography should make a greater endeavor to serve his needs. At the same time, the purpose of such courses should be spelled out in the catalog in order to minimize the problems of articulation.

THE ARTICULATION CHALLENGE

The problems of articulation are many, as the articulation is among many and varied parties. Much of the articulation involving the two-year college is with related secondary institutions. Nevertheless, it is with articulation between two-year colleges and those four-year institutions receiving the transfers from the two-year schools that the panel is most concerned.

There are not enough data from schools with terminal courses to provide an accurate indication of the interplay with business and other elements of the community. From the few terminal programs mentioned, it does appear they have been built on successful articulation. Getting into the community to ascertain what skills are needed is evidently as important as letting the community know what kind of training is offered. What to do with general education for the terminal student is quite another question. Similar questions and problems relate to articulation between the two- and four-year schools. An example is from California, where two-year colleges have recently been able to create their own requirements for transferable general education, rather than to accept the plans adopted by the four-year institutions. This reversal of the usual pattern came about after the public commitment became one in which the two-year college was to play the major role for the first two years of the four-year publicly supported programs. Prior to that time, the two-year partner in the articulating process was a follower rather than a leader.

Those states that have adopted the principle of the California plan for higher education have occasionally witnessed a similar reluctance for the two-year college to follow only the four-year college plans, particularly where the two-year colleges are getting the bulk of the lower division enrollments that are supported by public funds. The traditional articulation of four-year institutions setting the pattern for geography offerings with their requirements for the baccalaureate degree, and with the two-year colleges endeavoring to fulfill their share of curriculum, is now being challenged. Cooperation between the two parties is still the basic ingredient, whether the articulation is traditional or not.

Articulation between the two- and four-year colleges is best exemplified by the

concern over just what constitutes appropriate introductory material in geography. Just as is shown in the second section of this report, and as earlier publications of the Commission on College Geography have indicated, there is no universal agreement on the content and scope of introductory courses. Perhaps this stems from the general difficulty in defining the field. In a short but provocative article published in the *Journal of Geography* in 1964, William Pattison outlined four traditions of geography "whose identification provides an alternative to the competing monistic definitions that have been the geographer's lot."[2] Pattison goes on to express the hope that such a "pluralistic basis for judgment promises, by full accommodation of what geographers do and by plain spoken representation thereof, to greatly expedite the task of maintaining an alliance between professional geography and pedagogical geography and at the same time to promote communication with laymen."[3]

The four traditions as discussed by Pattison are 1) a spatial tradition, 2) an area studies tradition, 3) a man-land tradition, and 4) an earth science tradition. Under the spatial tradition the "true essentials" of this tradition are identified as "geometry and movement" and he points to the long-standing interest in distance, form, direction, and position. Next the early roots of the area studies or regional tradition are associated with Strabo's Geography and the significance of this tradition to American geography is emphasized. The man-land or ecological tradition of geography is characterized by Pattison as having a particularly strong appeal to those who teach geography, and that there is widespread acceptance among laymen "of learning that centers on resource use and conservation." Lastly, the earth-science tradition played a most significant role in American geography during the first part of this century.[4] Although today the number of professional geographers specializing in physical geography has declined greatly relative to those working in other specialities, physical geography remains a "bread and butter" course at many colleges and universities and it behooves all geographers to respect the contribution that physical geography can make to the discipline as a whole.

TRENDS AND THEMES IN COURSE CONTENT

The panel has chosen to examine in detail trends and themes in content of the four courses most commonly offered in the two-year colleges. The assumption is that improvements and changes will have to come within the framework of these four courses–at least in the foreseeable future. It is hoped that the themes here discussed, and suggestions offered, will be of use to junior college instructors who are anxious to keep abreast of changes in the scope and content of geography.

Each of Pattison's four facets of geography are found in the two-year colleges. In some parts of the country the introductory courses most widely in use is world regional geography. In other states physical geography is more popular. In still others cultural and economic geography is more commonly taught, often with an emphasis on the ecological and/or spatial orientation. The four courses that the panel has chosen as representative were not selected with the four traditions of Pattison in mind, but rather the reverse. The four traditions seemed the best vehicle to express the panel's previously determined courses, which were in turn formulated as a result of this survey.

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2. William D. Pattison, "The Four Traditions of Geography," *Journal of Geography*, Vol. 63, May 1964, pp. 211-216.
3. *Ibid.*, p. 211.
4. *Ibid.*, pp. 214-215.

The four courses will be discussed in Pattison's sequence, which is different from frequency of course occurrences in the two-year colleges. Thus economic geography is placed in the spatial tradition, the world regional course indicates some aspects of the area studies tradition, the man-land tradition molds the beginning cultural course, the earth-science tradition rather closely parallels the physical geography course. As the tradition concept indicates interweaving in the past, each course has some common threads with the others, and any individual beginning course may include more of another tradition than is represented here.

Economic Geography

Economic geography constitutes one of the broad divisions of the field of geography, and it is appropriate that it is often offered as one of the basic, introductory-level courses in the geography curricula of two-year colleges. The scope of economic geography has been variously defined. McCarty and Lindberg describe it as "a field that is concerned with the location and distribution of the economic activities of mankind."[5] According to Alexander, "Economic geography is the study of areal variation on the earth's surface in man's activities related to producing, exchanging, and consuming wealth."[6] Thoman provides a somewhat broader definition, namely that economic geography "exists as a subject of study chiefly because of a need to recognize and understand more fully location and functioning of economic activity in a world that varies conspicuously from place to place in both human and natural features."[7]

The establishment of specific, clearly understood objectives is an important element in the success of any course. It is particularly relevant for those handling introductory economic geography because of the changing approach to the study of the subject. While this change is currently most evident in the research work of professional geographers, it will inevitably affect the organization of courses at all instructional levels.

As a result of the current transition in the character of economic geography, there now exist two rather fundamentally different approaches to the teaching of freshmen or introductory-level courses. On one hand is the traditional approach wherein there is systematic world coverage of the location and function of major economic activities. On the other hand is a new emphasis on concepts, principles, methods, and issues relevant to an examination of the location of economic activities. In the two-year colleges the traditional "world coverage" approach dominates. This is not surprising since most of the textbooks are organized in this manner. These same conventional courses are also common in the senior colleges and universities, especially in those institutions now or formerly oriented to teacher-training. But in the major universities there is a clear trend in the direction of more analytical courses which encourage students to examine critically a locational question. There is also a trend toward a focus on issues relevant to our present society. It is thus appropriate to evaluate briefly the strengths and weaknesses of each approach and to note the opportunity for a compromise, evolutionary approach building on to the best of the past.

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5. Harold H. McCarty and James E. Lindberg, *A Preface to Economic Geography,* (Englewood Cliffs: Prentice-Hall, 1966), p.v.

6. John W. Alexander, *Economic Geography,* (Englewood Cliffs: Prentice-Hall, 1963), p. 9.

7. Richard S. Thoman, Edgar C. Conkling, and Maurice H. Yeates, *The Geography of Economic Activity,* second edition (New York: McGraw-Hill, 1968), p. vii.

The traditional introductory course in economic geography examines the distribution of economic activity, by major categories, for the world as a whole. This is the so-called "commodity approach" which has endured for more than four decades. Agriculture, mining, and manufacturing are emphasized. More attention should be given the services sector (trade, finance, recreation, etc.), geographic differences in income levels (e.g., the geography of poverty), and the structure of the labor force. For each item or product there is a discussion of major locations, sometimes country by country, with a brief analysis of why that activity is located there and the significance of its being there. Consideration is given to the relationships between such things as climate and grain production, coal and steel mills, and labor costs and textiles. In the case of some industries the manufacturing process itself is examined in detail. There are a number of textbooks from which one can choose.

There are some grounds for questioning the traditional approach. To discuss the location and function of all the world's major economic activities in one semester is a highly presumptuous task. Some geographers disparagingly describe it as "around the world in 80 days." It may not provide the student with the tools required for more sophisticated work in locational analysis. In moving from one country and one commodity to another, both lectures and textbooks tend to emphasize facts rather than to cultivate reason and analysis.

The conventional courses can be defended on a number of points. Freshman students may have little or no comprehension of the world around them, and a broad survey covering the world may provide them with a kind of framework useful for placing things in their proper global setting. Also, for some students this may be the only geography course they ever take, and therefore this is the one opportunity to give them some appreciation of the world's economic diversity. For many students a survey of foreign areas and their economic activities makes very fascinating reading. In those instances where the instructor can draw on his own personal experience abroad, the lectures can be highly stimulating and may encourage some students (especially those with a natural wanderlust) to consider majoring in geography or foreign area studies. Furthermore, one can argue that if students are going on to do work in geography it is essential that they have a certain reservoir of factual knowledge about world patterns of economic activity. This is similar to the kind of reasoning employed by history teachers in their insistence on a solid factual background.

In the final analysis it is, as in any course, up to the instructor to make a course interesting and intellectually meaningful. A teacher who takes advantage of opportunities to emphasize concepts and principles, and who focuses on selected case examples for in-depth analyses, can certainly produce a course that all would consider worthwhile. But the instructor—perhaps with little training in geography—who relies heavily on one of the more encyclopedic textbooks is not likely to stimulate more than a handful of students.

The trend today is toward a more conceptually oriented introductory course wherein the emphasis is on methods of examination, principles, and theory relevant to understanding the location of economic activity. This change in thinking has come in conjunction with the quantitative-theoretical revolution which has affected the geographic discipline since about 1955. In this same period we have seen the other social sciences (history excepted) swing away sharply from the largely empirical examination of individual situations. The concern now is with concepts, principles, and theory applicable to the general case. It is reasoned that this approach provides a

better basis for understanding the underlying factors governing individual situations.

For example, one might read, "Pittsburgh, favorably located in the western Pennsylvania coal fields at the junction of the Monongahela and Allegheny Rivers, has been a leading steel center for a century." This is a statement of fact, but does little to provide the student with a conceptual framework for evaluating the location. More meaningful would be the statement, "an industry requiring four tons of material A for each two tons of material B to produce one ton of product C will, out of consideration of transport inputs, find itself drawn to location A. Such was the case in the early days of the steel industry; many steel centers (e.g. Pittsburgh, the Ruhr, Donbas) developed at natural transportation junctions within or adjacent to areas producing coal (material A) and relied on importing their ores (material B)." The latter statement embraces the concept of locational pull and the principle of weight reduction, and it considers Pittsburgh not as a unique situation but as one of several examples of the general case. Such an approach will assist students to reason logically a locational problem and organize their thoughts around a selected group of ideas.

The new approach places a greater burden on the instructor. It places a greater burden on college administrations to find qualified instructors. It absolutely behooves the instructor to illustrate concepts and principles with numerous examples, preferably drawn from the local area, which enable students to readily associate lecture material with the real world. The course likely requires a person who has been trained in geography and has had at least some basic economics. To expect a history major with six hours of geography credits to teach the course makes no more sense than asking a geography major, with a year of freshman physics, to teach a meaningful course in introductory physics. Reinforcing the necessity for a well-trained teacher is a textbook problem. At present there are very few books, satisfactory as introductory texts, which incorporate the ideas and themes of the "new approach."[8] A list of required reading materials, manly articles in journals, could serve as a substitute for a text. The instructor will likely have to develop lectures and activities independent from any one textbook. To guide the instructor in the development of a course outline are a number of useful studies, in particular those developed under the aegis of the Association of American Geographers by the Commission on College Geography and the High School Geography Project.[9] It is not within the scope of this presentation, nor should it be, to present a specific outline or to suggest what topics ought to be covered. Rather, it is the responsibility of each instructor to develop his own outline in accordance with his abilities and the needs of his institution.

What about a compromise approach, building on the best of the traditional geography and incorporating the spirit and content of the new? The above discussion of the strengths and weaknesses of the old and new paths suggests some possibilities

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8. Some examples which the instructor will want to consider include McCarty and Lindberg, *op. cit.;* Thoman, *et al. op. cit.*, and Richard L. Morrill, *Spatial Organization of Society,* (Belmont, Calif.: Wadsworth Publishing Co., 1970).

9. In particular see, *New Approaches in Introductory College Geography Courses,*(Washington: Commission on College Geography, Association of American Geographers, 1967); *Introductory Geography, Viewpoints and Themes,* (Washington: Commission on College Geography, Association of American Geographers, 1967); *A Systems Analytic Approach to Economic Geography,* (Washington: Commission on College Geography, Association of American Geographers, 1968); and *Geography in an Urban Age,* High School Geography Project Unit II: *Manufacturing and Agriculture,* (New York: Macmillan, 1969).

for this. Taking a practical point of view, it is realistic to think in terms of a course which could use one of the existing textbooks, and a course which could be handled by most of those now teaching economic geography in the two-year colleges. The transition to a more analytic economic geography is necessarily evolutionary: instructors cannot logically be expected to recast their courses overnight, and even if they were inclined to do so, they still have to contend with curriculum committees and school administrators in effecting substantial changes.

All geographers would agree that it is important for students to have some factual knowledge about the world around them. But the acquisition of these facts should not be an end in itself, but rather a by-product of discussions emphasizing an analytical and conceptual approach. The facts acquired, if presented in the context of some general principle or theory, would seem to have more meaning and presumably enjoy a longer retention span. For example, settlement patterns in selected world areas could be examined within the framework of central place theory and the rank-size "rule." The textile industry should be noted in the discussion of labor-intensive industries and the locational pull of lower-wage labor.

What is needed is a textbook which presents factual material concerning the world's economic geography in conjuction with concepts, principles, theory, and methods of analysis.[10] Furthermore, the material should be presented at a level at which the instructor and the students can handle it. Some of the new texts, purportedly introductory, in fact require a degree of sophistication in statistics and economics which we cannot assume are possessed by most students and instructors, whether at two-year or four-year schools. New and improved textbooks will inevitably appear in coming years, but it will likely still be up to the instructor to develop course materials designed to supplement rather than to parallel existing reading assignments.

An introductory economic geography course can be made more relevant by examining the geographic dimension of some of the nation's economic problems. Some of these are inevitably interrelated with the great social issues of the day. Is the heavy concentration of manufacturing in or near big cities economically or socially desirable? Should the Federal government attempt to achieve a more "even" geographic distribution of defense spending? Why is Appalachia poor? What can be done to encourage more industry to locate in rural areas so as to reduce out-migration to the big-city ghettoes? All of these topics are ones in which the element of geography is important, and to whose understanding the geographer can make an important contribution. Each of these topics is extremely relevant, and is likely to command the interest of students. Students *want* to know more about these issues.

There are exciting opportunities for improving introductory economic geography courses and expanding their role in the liberal education of two-year college students. A compromise view on the teaching of introductory economic geography constitutes a practical, evolutionary approach to meeting the on-going challenge of changing student needs and the shifting focus within the field of geography.

World Regional Geography

Use of the regional approach in the teaching of geography has been widely used

10. To date, Thoman, *et al. op. cit.*, have probably come closer to achieving this objective than other textbook authors.

and often much abused. The popularity of regional geography actually contributed significantly to the total development of the discipline in this country as well as in western Europe. In recent years, however, widespread criticism of regional geography has led some to reconsider its position in general education. But this criticism has been aimed more at the graduate level than at the lower division one. One such critic was C. Warren Thornthwaite in his 1961 presidential address to the Association of American Geographers.[11]

In undergraduate programs in geography regional courses and the use of an introductory course in world regional geography are still common and often constitute the principal framework of the geography curriculum at many two- and four-year colleges and universities. At the elementary and secondary school levels regional geography dominates the scene and will probably continue to do so for sometime. This situation prevails in spite of significant efforts to develop new curriculum materials for a topical study of geography at the secondary school level.

In reviewing the survey data presented in Table II of this report, it is hard to identify any one part of the country as the stronghold for the use of the world regional approach for the introductory course in geography. Among the North Atlantic States two-year colleges in Pennsylvania show a strong preference for a world regional course. In the Great Lakes and Plains States, Illinois makes widespread use of the world regional course as does Michigan, although in the latter state physical geography is more frequently used. In the Southeast the two-year colleges of Florida are using the world regional course much more commonly than physical geography, which is next in importance. In the West and Southwest world regional geography is being used by at least 18 two-year colleges in California alone, but physical geography is far more widely used in that state.

What does the world regional course have to offer in the curriculum of the two-year college? How does such an approach to the study of geography fit into the present and future hierarchy of geographic education? How can the world regional approach be improved as an introductory course in geography for the two-year colleges? Constructive answers to these questions are needed in order that more meaningful decisions can be made in adopting geography courses for use in either an individual two-year college or in a system of such colleges.

As presently taught both in two- and four-year colleges, the world regional course is sometimes only an inventory of physical, political, economic, social, and other characteristics of large areas of the world, which when studied more closely do not really "hang together" effectively in a meaningful regional framework. This "encyclopedic description" approach is found in regional geography at all levels of geographic education from elementary, through secondary, and at both introductory and advanced course levels in colleges and universities. If such an approach can be replaced with a more provocative emphasis, for example, upon the study of "processes of regional formation and development,"[12] then the introductory course in world regional geography will continue to be the important course that it has been in the past.

The student who takes geography as a general education course should acquire an understanding of such matters as:

11. C. Warren Thornthwaite, "The Task Ahead," *Annals,* Association of American Geographers, Vol. 51, December 1961, p. 345.

12. Norton S. Ginsburg, "On Regional and Other Geographies," *Introductory Geography, Viewpoints and Themes,op. cit.,* p. 110.

1) The content of the world, systematized into meaningful categories and patterns;
2) The concept of environment: its physical, biotic, and cultural elements;
3) The diversity and distribution of environments as spatial arrangements, over the earth's surface;
4) Ecologic processes that tend to increase productivity or that tend toward deterioration of environment;
5) Cultural processes of invention, diffusion, culture diversification or cultural convergence in man's perception and use of space.[13]

Of course, present courses in world regional geography have not neglected these contributions which geography can make to learning. However, the time has come when the emphasis on concepts and ideas must take priority over the inventory approach in a world regional course.

In elementary and secondary schools the world regional approach has been widely used throughout the United States and will probably continue to be the main type of geography course taught at those levels for sometime in the future. However, the High School Geography Project has developed a new course with a topical rather than a regional orientation and it is being used in some secondary schools. If a more meaningful hierarchy of geographic education is to evolve in this country, some revisions and adjustments in introductory courses in two- and four-year colleges will need to be made.

An examination of textbooks currently available for use in introductory courses in world regional geography reveals that the organization and theme of these texts closely parallel textbooks in use at the elementary and secondary levels in world regional geography. In the preface of a secondary school text, *Our World and Its Peoples,* stress is placed on three fundamental geographic themes: 1) man's adjustment to his environment; 2) man's modification of his environment; and 3) the relationship between geography and the contemporary scene.[14] A college text with the title *Regional Geography of the World* "seeks to assist college and university students in acquiring certain basic ideas and supporting facts about contemporary world geography which a person with a college education might reasonably be expected to know."[15]

Organizationally, world regional geography texts currently in use have for the most part relied on one of three basic approaches to regionalization on a world scale. At present the culture-region approach seems to be more commonly used. Thus a regional nomenclature consisting of such names as Latin America and Anglo-America has had widespread acceptance. Formerly a physical-region framework (mainly climatic) was in common use and is still used today in some texts for world regional geography. Such a physical framework uses such regional categories as dry lands, tropical forest lands, and polar lands. In the preface to *One World Divided*, Preston James states that the eleven culture regions which he uses are really "a geographic hypothesis." He emphasizes that the characteristics of a region are most clearly defined at its core rather than at the peripheries. James makes the assumption that the

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13. Report of the Geography Advisory Panel to the Statewide Social Sciences Study Committee on Improving the Education of Teachers of Geography, (Sacramento: California State Department of Education, 1967), p. 2.

14. Edward R. Kolevzon and John A. Heine, *Our World and Its People,* (Boston: Allyn and Bacon, 1965), pp. 5-6.

15. Jesse H. Wheeler, Jr., Trenton Kostbade, and Richard S. Thoman, *Regional Geography of the World,* Third Edition, (New York: Holt, Rinehart and Winston, Inc., 1969), p. v.

division of the world into these eleven culture regions will "serve to illuminate rather than obscure the nature of the processes of change that are at work."[16] The third approach used in world regional geography has employed the theme of regional development and has surveyed the world from that perspective, sometimes with a theoretical emphasis.

Retention of similar themes and comparable regional components at different levels in education has merit provided there is a sufficiently valid increase in the level of sophistication at which the concepts, ideas, and supporting facts are presented. Has the introductory world regional course as taught in the two- and four-year colleges kept pace with the rising expectations of students who are entering colleges and universities today? Is the student who has used an elementary text, *At Home Around the World;* or junior or senior high school texts called *The World Around Us, The Wide World, Our World and Its Peoples,* or *Geography and World Affairs,* for example, likely to find an exciting new approach in studying a third time from such college level texts as *One World Divided, World Regional Geography, Man and the Land, Culture Worlds,* and *Regional Geography of the World?*[17] Perhaps for many students the answer is "yes," but for many more the answer may very well be "no." With good teaching, a good supporting library, and stimulating activities, courses in world regional geography can provide a very meaningful introduction to geography at the college level. Of course, any introductory course is enhanced by good teaching and a good library, but the college-level course in world regional geography seems particularly vulnerable to criticism from alert students who may view it at best only a review of their secondary or even elementary level courses. Is there then a way to retain the strengths of the world regional introductory course in two- and four-year colleges and at the same time eliminate some of its weaknesses?

Under the auspices of the Commission on College Geography, Ann Larimore has prepared an outline for a course in world regional geography.[18] Outlines for the course have been prepared for a one quarter, a one semester and a two-semester course. Her approach to world regional geography seeks to retain the "intellectual tradition" of the introductory course in world regional geography but places much greater emphasis upon "processes of regional formation and development."

When considering the place of geography in the general or liberal education framework of the two-year college program, a course in world regional geography must be considered primarily as a liberal education course rather than as the first or introductory course required for a geography major. If this premise is accepted, then the world regional course does not have to satisfy sets of conflicting objectives. When

16. Preston E. James, *One World Divided: A Geographer Looks at the Modern World,* (New York: Blaisdell Publishing Company, 1964), p. viii.

17. Delia Goetz, *At Home Around the World* (Boston: Ginn and Company, 1965), Z. A. Thralls and E. L. Biller, *The World Around Us,* (New York: Harcourt, Brace and World, Inc., 1965), Preston E. James and Nelda Davis, *The Wide World: A Geography,* (New York: The Macmillan Company, 1962), Edward R. Kolevzon and John A. Heine, *Our World and Its Peoples,* (Boston: Allyn and Bacon, 1965), pp. 5-6, Stephen B. Jones and Marion Fisher Murphy, *Geography and World Affairs,* (Chicago: Rand McNally and Company, 1965), Preston E. James, *One World Divided: A Geographer Looks at the Modern World,* (New York: Blaisdell Publishing Company, 1964), Oliver H. Heintzelman and Richard M. Highsmith, Jr., *World Regional Geography,* Third Edition, (Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1967), George F. Carter, *Man and the Land: A Cultural Geography,* Second Edition, (New York: Holt, Rinehart and Winston, Inc., 1968), Richard Joel Russell, Fred Bowerman Kniffen, and Evelyn Lord Pruitt, *Culture Worlds,* (New York: The Macmillan Company, 1969), and Jesse H. Wheeler, Jr., Trenton Kostbade, and Richard S. Thoman, *Regional Geography of the World,* Third Edition, (New York: Holt, Rinehart and Winston, Inc., 1969).

18. Ann E. Larimore, "The World Regional Geography Course: Alternative Approaches", *New Approaches in Introductory College Geography Courses, op. cit.,* pp. 39-109.

properly organized and effectively presented, a world regional geography course can be used to fulfill geography's place in general education. In an earlier report dealing with *Geography in Undergraduate Liberal Education,* Chauncy Harris sets forth the following role for geography:

> A liberal education should develop in each individual the realization that his own country, region, and ethnic, religious, or linguistic group is but one among many, each with differing characteristics, and that other countries, regions, or social groups are not necessarily queer, or irrational, or inferior. It may be argued that one cannot see his own country and culture in perspective until he has studied other lands and peoples. Only then can one realize that his own civilization is but one of a family of civilizations with common elements yet distinctive characteristics, evolving through time from common antecedents with differentiation but with much cultural borrowing, facing similar problems yet with particular combinations of attitudes, policies, technologies, climates, soils, minerals, and evolved economic systems.[19]

In presenting the conceptual framework for the World Regional Geography course Larimore makes the following arguments for a course which she hopes will contribute to a revitalization of world regional geography in liberal education:

> This course is based on the concurrent analysis of the development and persistence of regions formed by the interaction of universal geographic processes. The course directs primary attention to three kinds of regions, all products of human behavior interacting with the natural environment: those resulting from (1) the innovation and diffusion of cultural patterns, (2) the functioning of areas of organization, (3) the operation of resource utilization (livelihood activities) systems. Such regional analysis must necessarily treat causative geographic processes so that the student appreciates their continuous operation through time as well as the varying current manifestations of their global nature. Each process would not necessarily have equal priority for discussion but nevertheless each warrants inclusion. To provide an explicit conceptual overview for the course, these processes would be treated systematically and their global patterns would be described at the beginning of the course.
>
> The region has consistently been used as a prime organizing concept in teaching geography. This course aims to integrate the concept of the region and the concept of geographical processes by using only regions which may be identified as resulting from the interaction of specific processes. Regions thus are areas defined by the occurrence of a measurable concentration of phenomena (uniform/homogeneous/formal regions) or by a measurable focusing of movement flows (nodal/functional regions). Such concentrations whether of specific phenomena or of focused movements are considered to be always in a state of change so that regions are not static nor necessarily enduring phenomena. Such regions thus may be considered to form, persist, and possibly to disintegrate; consequently, they may be genetically analyzed. The conceptual basis for the intellectual organization of this course is to be found in this process of regional formation by the global interaction of geographical processes.[20]

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19. Chauncy D. Harris, "The Geographic Study of Foreign Areas and Cultures in Liberal Education," *Geography in Undergraduate Liberal Education,* A Report of the Geography in Liberal Education Project (Washington: Association of American Geographers, 1965), p. 25.
20. Larimore, *op. cit.*, pp. 45-46.

This new course has been carefully implemented. taught, and evaluated.* Further review and some revision is still contemplated. In spite of some problems which were encountered when the course was first offered, this course in world regional geography promises to have real merit for use as an introductory geography course in the liberal or general education program of two-year colleges.

Cultural Geography

Cultural geography, as a survey course, includes the human, cultural, or social emphasis coupled with the topical or thematic approach rather than a regional one. As recently as the late 1950's and early 1960's many geography courses that dealt with human or cultural characteristics (at least those taught on the freshman or sophomore level) tended toward either a world regional or general introductory approach. In the latter instance, the material was about equally divided between the physical and human elements of the landscape. In more recent years, however, cultural geography courses as separate, topical, one-semester courses have increased in number.

Current trends strengthen the shift from description-environmental types of courses to a focus that is strongly historical, comparative, and analytical. Dicken and Pitts state that "Human Geography is . . . the study of the origin and distribution of man and the cultural features with which he is associated."[21] Another trend incorporates the theme of "cultural change." This theme is more "man" oriented. A particular culture is no longer looked upon as a permanent complex, but rather one that is constantly modified through time. It is seen as affecting and being affected by neighboring cultures. Spencer and Thomas make the statement that "In the practice of cultural geography, the practitioner is apt to take the long view, to be less involved in the full elaboration of the operational details of a particular system at a particular time than with the understanding of the spatial and process interrelations of neighboring systems."[22]

Emrys Jones moved in the same direction when he emphasized the historical and cultural factors with the statement, "the relationships which the human geographer tries to analyze are often between particular groups of men and a man-made environment; and the latter has been the outcome of other relationships between different groups of men and a less transformed environment."[23]

To support the theme of "change," most of the authors of books and articles dealing with cultural geography over the past decade have tended to concentrate on such cultural processes as diffusion of innovation, human interaction, and environmental perception. As examples, Broek and Webb devote one chapter to "Technology: Origins and Diffusion" and another to "Religions: Origins and Dispersals."[24] They further spend considerable time discussing changes through time of the racial and linguistic global patterns resulting form the expansion and

* The results of the evaluation have been published in Hastings, Wardrop and Gooler, *Evaluating Geography Courses: A Model with Illustrative Applications,* (Washington: Commission on College Geography, Association of American Geographers, 1970).

21. Samuel N. Dicken and Forrest R. Pitts, *Introduction to Human Geography,* (New York: Blaisdell, 1963), p. iii.

22. Joseph E. Spencer and William L. Thomas, *Cultural Geography: An Evolutionary Introduction to Our Humanized Earth,* (New York: Wiley, 1969), p. 5.

23. Emrys Jones, *Human Geography: An Introduction to Man and His World,* (New York: Praeger, 1966), p. 17.

24. Jan O. M. Broek and John W. Webb, *A Geography of Mankind,* (New York: McGraw-Hill, 1968).

contraction of centers of power and influence.

Spencer and Thomas point out that "most of the content of each of the world's cultures has been . . . either diffused by migrating peoples who carried with them their values, ideas, and material goods, or diffused by the borrowing of ideas that one people learned from another."[25] They, too, delve into the theme of cultural change in a section entitled "Cultural Divergence Followed by Cultural Convergence." Thus, different groups of men representing different cultures are seen as perceiving similar physical environments in very different ways. Their attitudes are influenced by their earlier periods of development, as well as by the way they act toward and react to neighboring cultures.

It may be that the reasons for these recent changes in cultural geography are the result of failings of older themes and techniques, or possibly the result of increased knowledge of the past and a growing awareness of man's cultural interaction through the years. Whatever the reasons might be, it seems they are augmented by an increasing number of people in the world, by an increase in human interaction with advancing techniques of communication and transportation, and by a commanding position of the United States in world affairs.

One further change that may yet develop an additional trend is the move toward quantitative analysis. Discussions of various methods of locational analysis have certainly found their way into upper division and graduate training in geography, and they may in time be incorporated into lower division courses.[26]

Physical Geography

The earth science tradition within geography is strongly displayed in three of the states having the largest enrollments in geography. California, Illinois, and Michigan not only have the largest enrollments in all courses, but they have the largest dependence upon a physical geography course, usually carrying science credit and taught in the earth science tradition.

This physical geography course has generally taken the same materials as parallel courses in the four-year institutions, as indicated in subject matter listings found in beginning textbooks.[27] Mathematical geography, weather and climate, landforms, soils, vegetation and occasionally animal life, and water form the topic listings, even though climate and landforms generally receive the bulk of the treatment. These materials are, however, used in many ways for many purposes. A sampling of the goals of physical geography indicates that for the beginning general education student, the course is designed as a base for cultural studies; as an ecological framework to indicate the integration of the features of physical geography over the earth surface; or as a description of distributional patterns over the earth of physical and biotic phenomena.

When applied to the student continuing in geography, the beginning physical course should form the base for later studies of physical and biological processes on the earth's surface and the interaction of these processes to give spatial variation. The

25. Spencer and Thomas, *op. cit.*, p. 59.

26. Peter Haggett, *Locational Analysis in Human Geography,* (New York: St. Martin's, 1966).

27. Some examples are: H. M. Kendall, R. M. Glendinning, and C. H. MacFadden, *Introduction to Geography,* (New York: Harcourt, Brace and World, various dates) M. P. McIntyre, *Physical Geography,* (New York: Ronald Press, 1966); A. N. Strahler, *Introduction to Physical Geography,* (New York: Wiley, various dates); and G. T. Trewartha, A. H. Robinson, and E. H. Hammond, *Fundamentals of Physical Geography,* (New York: McGraw-Hill, various dates).

concept of time, both as a part of process and changing spatial variation, provides one basis for other geographic enquiry. It is often considered as important as space in geographic analysis.

This, then, is the general position of the physical geography course today, both as to general education and to professional work in academic geography. What changes may be in order, or at least what do some physical geographers think the changes ought to be? Three central themes prevalent today are the environmental unity idea, with man an integral part of the environmental complex; the idea of explaining landscape in terms of multiple physical processes; and treating physical geography in terms of both process and of the geometry of space. These three thematic trends are perhaps just a few out of many, and before presenting each one in more detail, it can be noted that they contain elements of each of the other geographic traditions—ecological, regional, and spatial.

The environmental unity idea is not new, but the significance of man's position as both a modifier of the environment and the recipient of environmental bounty (i.e., resources) has particular relevance to today's entire student generation, somewhat as it did to previous generations of geographers. Man and the ecosystem is often a dominating theme. Perhaps the main differentiation between the earth science view and the one presented as cultural geography is one of approach. The interrelationships existing between man and his natural environment are here viewed from the standpoint of physical processes. These processes include man as an agent, both through his willful and unmeditated acts, but nonetheless comparable to any other physical or biological agent in shaping the variable physical patterns over the earth. Thus nature takes precedence, and man becomes involved at the process stage rather than at the environmental evaluation or end stage. Seldom would the entire world be described using this approach; instead, sample cases would suffice.

The regional tradition, as demonstrated in the physical geography course, focuses more on the end result of processes at work on the earth's surface. Thus the description of the areal variation of the physical landscape becomes of major importance, while landscape change and process is usually relegated to a secondary position. This often is presented as environmental variation to set the stage on which later human studies are made. New trends seem to indicate that even here, the variety of physical landscapes are becoming important in their own right, without resorting to patterns of occupance. Examples are seen in advanced texts emphasizing regional geomorphology,[28] and will perhaps soon be present at the beginning world physical geography level. An alternative pattern, presently under study, is to provide a systems analysis approach for untangling the complexities of any physical region. Thus the beginning course may become one which analyzes a few of the earth's environments rather than one attempting to treat them all.

The spatial tradition is perhaps both the oldest and the newest. At least the revival of quantitative treatment as a tool of spatial research, having been long used in areas like climatology, is beginning to proliferate rapidly into landform studies, soils geography, and hydrography. The attempts to study both process and spatial arrangement within the areas of physical geography by utilizing statistical models is

28. W. D. Thornbury, *Regional Geomorphology of the United States,* (New York: Wiley, 1965); other versions of this approach are, W. W. Atwood, *The Physiographic Provinces of North America,* (Boston: Ginn, 1940); N. M. Fenneman, *Physiography of Eastern United States,* (New York: McGraw-Hill, 1938).

increasing. The signs are clear, and sections of one beginning text certainly bear this out.[29] It is perhaps another attempt to blend the old with the new, or perhaps to phase in some of the new within the framework of the old. It hasn't caught on as yet, but many publishers are evidently feeling out the market for such beginning texts. Time will tell.

The dependence upon basic elements continues, regardless of tradition or new wrinkles. Geographers who have for so long been interdisciplinary in outlook are now finding a rapid number of new scientists crossing the disciplinary barriers, often to create new disciplines but also forming a vast new reservoir of workers with interests coinciding in part with those of geographers. Let this be a welcome challenge to the rich heritage of the physical geography basic course in the two-year college.

29. Strahler, *op. cit.*

INSTRUCTIONAL NEEDS

TRAINING AND STAFFING

The accelerating demand for educational opportunities beyond secondary school, along with peak numbers of college age persons, has created a major crisis in training professionally qualified staff for two-year colleges. The problem is particularly acute since they are often in competition with secondary schools and four-year colleges for instructional personnel. Not only is there a crucial need for more instructors, but even more critical is the existing problem of quality.[1]

Geographers who are qualified and available to teach in the two-year colleges are relatively scarce compared with those in other fields like history and political science. The subordinate place of geography in the curriculum of most of the two-year colleges further compounds the staffing problem in geography. Since a less-than-full teaching load in geography is the rule, one of two alternatives is usually available to the two-year college administrator in providing geography courses: 1) a person trained in another discipline who has only limited training in geography is asked to teach geography, or 2) a person who is well-trained in geography is asked to teach courses other than geography to round out his teaching load. Ideally, courses in geography should be taught only by instructors fully qualified to teach them, and geographers should not be required to teach in other disciplines in which they have had little or no training. But "ideal" conditions are often not obtainable given the 1) shortage of trained geographers, and 2) limited number of geography courses offered.

In obtaining well-qualified geographers to meet existing needs, two-year colleges are frequently at a disadvantage when competing for personnel. The dean of academic instruction at Mid Michigan Community College, who was trained as a geographer and who has previously taught geography in two-year colleges, aptly characterizes the existing situation:

> Frequently the geography instructor is a crusading "loner" and often a pedagogical "greenhorn." Characteristically, teaching loads are heavy, library and other facilities limited, and the possibility of keeping up to date most remote. Often the "geography instructor" has been obtained from the local high school, not uncommonly from an allied discipline, and sometimes with little academic training in the subject.[2]

The geography profession must attack the problem of recruiting and training more instructors to teach in the two-year colleges, and administrators in many two-year colleges must work hard to provide the favorable academic climate that will enable them to hire and to retain qualified instructional personnel. This is not a problem unique to geography, although it is perhaps more pronounced than in other disciplines where there is a plentiful supply of applicants.

In surveying the problem of training, two facets need attention. Pre-service training needs to be carefully reviewed and regularly evaluated to insure that prospective instructors of geography are given the kind of training that will make them as well-qualified as possible to take a first teaching assignment in a two-year college. For those instructors already teaching there is the need to provide adequate in-service training opportunities to enable them to keep abreast in their discipline and

1. Curtis S. Murton, Jr., "The Preparation of Junior and Community College Geography Instructors," *Journal of Geography*, Vol. 67, March 1968, pp. 156-160.
2. Murton, *op. cit.*., p. 157.

to carry on dynamic and stimulating teaching.

Pre-Service Training

The minimum qualifications for teaching geography in the two-year college should include:

1) a viable competency in geography
2) an appreciation for the role and function of two-year colleges
3) an adequate understanding of the learning process
4) a current and effective familiarity with instructional techniques and materials

A competency in geography needed for teaching in a two-year college can be acquired most effectively by initially pursuing a program of study in geography to the completion of the master's degree. Such a program should include a careful selection of courses that will constitute a major in geography or at least nearly the equivalent of an undergraduate major. The graduate program for the prospective instructor in the two-year college should provide a well-rounded background in the major facets of geography and an opportunity to develop some degree of specialization in one or more sub-fields of the discipline.

Although undergraduate and graduate programs vary greatly, there is a clearly discernible common core characteristic of the undergraduate curricula in geography. A recent survey of undergraduate major programs in American Geography was completed under the auspices of the Commission on College Geography. From this survey it was concluded that there was a consensus among professional geographers that a "basic core of courses" should be required of each undergraduate major student. In the report of the survey made of departments offering undergraduate major training in geography the requirements are summarized as follows:

> The standard major program in geography in the United States requires some exposure to an introductory course in *physical geography*, which often is accompanied by a laboratory and some experience in map interpretation. It is also usual to require an introductory course in the broad area of *human/cultural/economic geography*, which may be approached in a variety of fashions. Most departments require the student to take at least one *regional geography* course, which may or may not be a stipulated region. A course in *map reading, cartography*, or *graphics* normally is required, although in some of the larger departments the student may elect an alternative from a longer list of technique courses. Many departments consider a *field course* desirable, and a *capstone course* of some sort in the senior year is strongly supported.[3]

The findings obtained from this recent survey by the Commission on College Geography are consistent with the recommendations of a Geography Advisory Panel made in a report to the Statewide Social Sciences Study Committee for the Board of Education and the Department of Education of the State of California. This panel made specific recommendations for an essential minimal program of geography for the prospective teacher of geography at the secondary level. The members of the panel studying the role of geography in the two-year colleges unanimously concurred with the general scope and focus of the recommendations for a minimal core curriculum made by the California Advisory Panel, which had a considerable amount

3. *Undergraduate Major Programs in Geography, 1968* (Washington: Commission on College Geography, Association of American Geographers, 1968), p. 5.

of talent and time for its deliberations.[4]

The recommended undergraduate core of geography courses for specialized geography teachers made by the California Advisory Panel, along with appropriate supporting descriptions of each course, is presented here as a worthy example of an undergraduate program for the prospective instructor of geography in the two-year college.

1) Introductory Undergraduate Courses

Cultural (or Human) Geography

Fundamentals of culture, diffusion, resources, and other man-land perceptions and appraisals. World patterns of population distribution, ethnic and cultural diversity, settlement, production and consumption, transport and communications, and territorial organization, with some serious intent to understand spatial distribution and spatial interaction of economic phenomena. Generalizations concerning spatial aspects of such human phenomena as systems of social organization, religion, language, education, economy, law, and government.

Physical Geography

Fundamentals of the earth's grid, maps, and earth-sun relationships. World patterns of climate, landforms, drainage, soils, vegetation, earth-materials. Generalizations concerning spatial aspects of physical-biotic phenomena and processes, including their interrelation through time.

2) Intermediate and Advanced Undergraduate Courses

Geographic Techniques

The uses and limitation of maps, including the essentials of how modern maps are prepared. Practice in the interpretation of aerial photographs, topographic maps, and statistical and other special-purpose maps, including problems involved with changes in scale. Introduction to the regional idea at the micro-scale based upon field observation in the local or a neighboring community, to provide field experience in map and air photo use and checking

4. Report of the Geography Advisory Panel to the Statewide Social Sciences Study Committee on Improving the Education of Teachers of Geography (Sacramento: California State Department of Education, 1967). The roster of conference participants were: Brigham Arnold, Sacramento State College; Homer Aschmann, University of California at Riverside; Clinton Boutwell, Culver City Junior High School; Martha Church, Wilson College, Chambersburg, Pennsylvania; W. Glenn Cunningham, Los Angeles City College; Lyle E. Gibson, California State College at Dominguez Hills; Clarence J. Glacken, University of California at Berkeley; Carl L. Hansen, University of California at Riverside; John Fraser Hart, University of Minnesota; David Hudson, California State College at Dominguez Hills; Preston E. James, Syracuse University; Herbert G. Kariel, California State College at Hayward; Lorrin Kennamer, The University of Texas; Robert A. Kennelly, California State College at Long Beach; Clyde F. Kohn, The University of Iowa; John F. Lounsbury, Arizona State University; H. H. McCarty, The University of Iowa; Charles O. Moody, California State Department of Education; Midori Nishi, California State College at Los Angeles; A. Walter Olson, San Francisco State College; Edward T. Price, University of Oregon; Donald Reasons, Watsonville High School; Neville V. Scarfe, University of British Columbia; Joseph E. Spencer, University of California at Los Angeles; William L. Thomas, Jr., California State College at Hayward; George Vuicich, High School Geography Project, Association of American Geographers, Boulder, Colorado.

and to develop an understanding of the interaction of man and his environment.

Note: "Getting out in the field" is the way a geographer enters his laboratory. The "field" serves geography in much the same way that laboratory buildings and equipment serve chemistry and physics or library archives serve history; in either case, geography's field work is considerably less expensive in capital outlay. The cost of field work is felt to be a minor consideration relative to the benefits attained in terms of more accomplished and stimulating teachers.

Exotic Regional Course

In the context of a culture region (or regions) other than the student's own (i.e., the United States), the following concepts should be demonstrated: cultural determinants of environmental perception, man-land relationships, the time dimension in landscape development, and the regional idea on both macro- and micro- scales. It is irrelevant which exotic regional course a student selects to take; presumably the geography curriculum at a college contains several such courses geared to faculty talents and offered only by those intimately familiar with the region being studied.

Regional Course–United States or California (or some state)

In the context of the student's own culture, the following concepts should be demonstrated: functioning of social, economic, and political systems in space, at varying scales; interaction of these with physical and biotic systems in man's organization of earth space; the region as a holistic system. Model building and hypothesis testing based upon census data, archival materials, and field checking also should be incorporated.

Advanced Physical Geography

By focusing upon systems concepts, this course should provide a basic understanding of how the various physical systems function and interact in space to create actual landscapes. The explanatory power of understanding processes should be emphasized, but the time dimension and the significance of antecedent conditions also must be included.

Advanced Human Geography

A systematic course focused upon an aspect of human living from a global viewpoint (e.g., agricultural, settlement, urban, industrial, transportation, political) in which the course should demonstrate the role that geography, and geographers, can play in the analysis and solution of social problems. Field observations and interviews in the local region on problems deriving from human maladjustment to physical-biotic processes or from human conflicts over competitive or incompatible land uses (actual and planned) should augment classroom instruction.

Pro-Seminar in Geography for Teachers

Taken at the senior or graduate level, the pro-seminar in geography would serve both as a philosophical capstone, by way of review and synthesis, and as a transition to methods courses in education. The content of the basic course

(described previously) would be presented at an advanced level to small groups of students (optimum class size of 16) with adequate time for full discussion, oral presentations, and class critiques. The prospective teachers would be assisted in presenting geographic concepts and materials in a comprehensible fashion to students at all levels, be provided practice in organizing and conducting field trips, and be introduced to the available geographic literature, including reference materials, atlases and map collections, professional journals, travel accounts, and regional novels. Practical utilization of teaching aids would not be ignored but would not be the dominant purpose.

At the graduate level the prospective instructor of geography in the two-year college should pursue a program of study which will include some work in each of the following major areas:[5]

1) *Substantive courses* that will provide additional background and understandings in the major sub-field or sub-fields of geography of most interest to the student, such as cultural, economic, physical or regional geography. However, over-specialization in any one sub-field is inconsistent with teaching assignments likely to be encountered in the two-year colleges.
2) *Tool or technique courses* such as those dealing with airphoto interpretation, cartography, field training, and statistical methods.
3) *History and philosophy of geography* including attention to such issues as the place of geography in higher education and how geography relates to interdisciplinary programs.
4) *Teaching experience* under supervision in introductory course situations which will appropriately simulate the reality of the two-year college teaching situation. Attention should be given to the development of various methods and techniques which should be used by the effective teacher.
5) *Research experience* is needed to provide the prospective teacher with an appreciation for the need to develop in students a feel for the importance of intellectual curiosity and inquiry. Furthermore, every instructor must regularly carry on research in order to keep abreast of developments in his field of specialization.

In order to obtain a working appreciation of the role and function of the two-year college and an adequate understanding of the learning process, the prospective teacher might profit by taking some courses that will help fulfill this need. Courses of this kind are generally available in divisions or colleges of education found in nearly all institutions engaged in training teachers. In several colleges and universities a Master of Arts or Science in Teaching degree (M.A.T or M.S.T) offers the student more opportunity to take courses of this kind than when taking the master's degree requiring the completion of a thesis and/or the passing of a foreign language examination.

It can be argued that an internship in teaching constitutes another integral part of the graduate program of the prospective instructor of geography in a two-year college. Frequently the graduate student has not been provided with an effective opportunity to teach under careful supervision. Somehow, in many departments of

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5. John F. Lounsbury, "Graduate Preparation for Teaching of Geography in Liberal Arts Colleges and Universities," presented at a Conference on the Graduate Preparation of Scientists for Undergraduate Teaching in Liberal Arts Colleges and Universities, organized by the Association of American Colleges and supported by the National Science Foundation, Washington, May 2-3, 1969.

geography, as well as in other disciplines, it has been assumed that good teaching will just come naturally. More conscious effort is needed to involve graduate students in teaching. Observation of the teaching of introductory courses by experienced teachers offers the prospective instructor a chance to get some initial understandings of what methods, techniques, and materials are effective in a given situation. Of course the student must realize that the same mix of methods, techniques, and materials employed by another insutrctor will not necessarily be his most effective strategies.

In order to test out some of the many alternatives that are available, a carefully planned internship which provides a sequence of different and progressively more difficult teaching situations may well be advisable. Then the student can do some actual teaching with an experienced instructor available for counsel and evaluation concerning the student's progress in mastering the art and science of effective teaching.

In-Service Needs

It is difficult to summarize briefly the needs of the two-year college geography instructor once he has accepted a teaching position; there are likely to be as many combinations of circumstances and attending needs as there are instructors. To begin with, these instructors are frequently "loners" who find themselves deprived of the benefit of dialogue with colleagues in their own discipline. They often teach more than normal loads and, because teaching is the principal activity, little if any time can be devoted to research. If time is available, many institutions lack extensive library and other facilities associated with the major centers of higher education. Many instructors have undertaken no formal graduate course work beyond their degree and may have been "out of touch" for several years. The result, all too often, is that the two-year college geography instructor has not been successful in keeping abreast of the latest developments in his field.

There are several situations in the two-year colleges that tend to reduce the level of instruction and the effectiveness of geography within the college curriculum. First, a large number of instructors of geography in the two-year colleges are not geography majors and thus have had little or no academic preparation in the subject area. This is shown clearly in the responses received by the panel to the questionnaires that were sent out. From the 388 responses received, only 156 instructors indicate having master's degrees with a geography major. Thus only 40 percent of those teaching geography at the two-year college level have what is normally considered the minimum amount of training for college-level teaching. A number of the non-geography majors recognized their lack of training and indicated that they had managed to acquire some additional geography courses at a nearby four-year institution. The number indicating such a move was not significantly large, however.

Another common problem is that many geography instructors, majors and non-majors, are teaching the subject on a part-time basis and thus spending some portion of their time in another subject area. Of those responding to the questionnaires, only 111 geography instructors (29 percent) are spending more than 80 percent of their time teaching geography. Even if one were to assume that all 111 are geography majors with master's degrees, still only 71 percent of those majors are teaching geography on the above stated basis.

Geography is a rapidly changing field of study, and a geography instructor needs all of his time to stay abreast of changes in the field and incorporate new concepts

and ideas into his classroom materials. Thus the above problems ultimately lead to several unfortunate conditions. Not only are a large number of people teaching geography who are inadequately trained but there are also those who have the training in geography and who are teaching in fields where they lack training. This usually means that the geographer has to spend a great deal of his time in acquiring the needed information to do a reasonable job in the related subject area. Thus his geography courses may suffer because of insufficient time to prepare and innovate.

Another common condition is the lack of professionalism. The geography instructor at the two-year college either has never had any previous contact with the profession and feels little or no responsibility toward it or if he previously had contact with the profession he often becomes isolated from it in his junior college position. Of the 528 instructors who were teaching geography courses in 1968-69, only 15 percent were members of the Association of American Geographers.

The instructor should take the initiative in joining one or more national, regional, or state professional organizations for geographers. The national organizations are: Association of American Geographers with headquarters at 1146 16th Street N.W., Washington, D.C. 20036; National Council for Geographic Education, located at 111 West Washington Street, Chicago, Illinois 60602; and the American Geographical Society at 156th Street and Broadway, New York, New York 10032. Each of these organizations publishes a journal as well as geographical reports each year, which can be of assistance in keeping abreast of developments in geographic research and teaching. Where regional or state societies of professional geographers are organized, the junior college geography instructor will especially be able to make professional contacts that can aid his professional development.

Two major obligations should be assumed by geographers at four-year colleges and universities. First, the departments in the four-year institutions should make an effort to contact and establish a working relationship with the geography instructors in the surrounding two-year colleges. Since there are many two-year college instructors who have little training in geography and lack contact with the profession, it is not usual for them to make the initial contact. The four-year department can act as a professional resource agency from which the junior college geography instructor can operate. Secondly, there is a distinct need for institutes or similar programs directed by various four-year colleges in different parts of the United States. These institutes should be aimed at those two-year college geography instructors who have a deficiency in their training in geography, and should attempt to improve the level of instruction in introductory courses in two-year colleges.

A word of caution is in order for those institutions considering such programs. Proper incentives have to be developed to encourage success, as college credit for institutes is not always enough. Most two-year colleges base their salary increments on the number of college credits beyond a master's degree in the instructor's major field or related fields. This is often interpreted liberally and education courses are sometimes given credit. This means that many junior college instructors of geography have probably acquired all of the credits they need to be at or near the top of the salary schedule. Additional monetary and professional incentives must therefore be offered.

Two possible programs present a much more personal approach to the existing in-service needs of the instructor, students, and institutions. One of these programs is an instructor-exchange program between the two-year colleges and the universities and/or between and among two-year colleges. This program would serve as an aid to articulation and as a stimulus to new program development. A second is a

program providing state or regional "trouble-shooting" or advisory teams to respond to the call from an established college wishing to revise its program and facilities or from a newly created district seeking aid in planning its future program.

Not to be overlooked is the time-honored process of self-study. There are a growing number of good books, articles,and monographs available. The *Annals* of the Association of American Ceographers, the *Geographical Review* published by the American Geographical Society, the *Journal of Geography* of the National Council for Geographic Education, *Economic Geography*, the publications of the Commission on College Geography, and many others can aid the motivated instructor.

INSTRUCTIONAL TECHNIQUES AND STRATEGIES

An attempt to introduce certain techniques and strategies that are applicable to a wide variety of courses and institutional settings seemed appropriate to the panel. However, it was felt that the adoption of any instructional technique or strategy is secondary in priority to the more pressing question of "What are we trying to accomplish?" Or, more explicitly, "What are the objectives of this course and secondly, how can they best be achieved?" Unless the objectives of the course are clearly stated there is no need to select specific techniques.

With the course objectives defined, the geographer is ready to consider the educational media and modes of instruction that will support the instructor in achieving the specified goals. In the absence of budgetary and administrative constraints, the instructor has a large and bewildering array of resource materials from which to draw. The more traditional educational media include globes, maps, aerial photographs, slides, sound motion films, charts, models, filmstrips, and study prints. The utility of these traditional aids in teaching basic concepts, skills and facts is widely acknowledged. Two of the aids mentioned, maps and globes, serve a variety of functions and are frequently considered to be the most important educational media available for classroom use.

In recent years an impressive list of new educational media has joined the armory of instructional techniques. Many of these innovations currently are being tested and evaluated, others are undergoing their initial trial, and some have already proven to be of significant educational value. A partial listing of these media would include instructional television, the audio-visual-tutorial laboratory, the overhead projector and transparencies, the single-concept film loop, programmed instruction, and computer-assisted instruction. In many instances, it would be feasible as well as beneficial to combine all of the above into a multi-media system for instruction. However, most two-year and even four-year colleges have neither the faculty, supportive personnel, nor capital wealth to initiate such comprehensive programs.

Before briefly discussing each medium, a few cautionary comments are in order. Today, as never before, we have at our disposal a growing array of sophisticated and costly equipment that inadvertently can be misused. This misuse may range from the failure to achieve instructional objectives to committing computers to teaching tasks for which they are not appropriate.

> A general prescription for avoiding serious misuse of instructional facilities has two parts: The materials and equipment should be designed, selected, and used to serve specific functions of teaching and to provide the best possible conditions for learning. Second, there should be a close matching of capacities of the technology with the instructional requirements. Furthermore, regardless of fashions and fads in educational

> facilities the simplest and most economical equipment that will perform well the defined and required instructional functions should be employed. In brief, solving the problem of determining the most appropriate uses for equipment requires the best matching of functions and capacities with the demands of instructional tasks.[6]

Instructional television first gained prominence when educators recognized its ability to solve certain problems stemming from growing student enrollments and a relatively static supply of instructors. Employed in this manner, television was used primarily as a means for multiplying the instructor's audience. As time progressed it became evident to students and educators that in many cases the use of instructional television simply to broadcast a lecture was undesirable. Many instructors were unable or reluctant to change their chalkboard presentation and adopt instructional techniques that would take full advantage of television's role as a visual and audio-disseminator of information.

The primary problem confronting insturctional television is that of developing course materials based on sound objectives that are worthy of televising. A well executed and pertinent 50-minute television script might well require an input of 15 to 25 hours of the instructor's time. An additional input of 10 to 15 hours frequently is required for the procurement and construction of illustrative materials such as maps, charts, photographs, and film clips. Reared in an era of television spectaculars, many of the students expect something beyond an ordinary classroom presentation when exposed to this medium. It is somewhat doubtful that a one- or two-man staff allocated to the teaching of geography at a two-year college can afford or justify this expenditure of time. An alternative would be to draw on the resources of the surrounding four-year colleges and universities. Assuming that these institutions have developed televised materials and are willing to share them, the shipment of videotapes from one campus to another can be accomplished easily and inexpensively.

The audio-visual-tutorial laboratory system of instruction is a method of self-paced independent study that provides each student with the space and necessary materials to achieve the learning objectives for a given course. Central to the system is a series of independent study carrels. As a bare minimum, each booth may be equipped with a tape player, 35mm. slide projector, screen, maps, charts, and aerial photographs. The variety of additional options is almost endless, but can include terminals for computer-assisted instruction and 8mm. motion picture and film loop projectors.

Additional instructional strategies might include a weekly lecture for the total enrollment or weekly meetings with small sections of the class for discussion purposes. Ideally, the audio-visual-tutorial system of instruction places the student in control of the learning pace so that he can adjust it to his needs. Branches in the system should consider diversity in student backgrounds, capacities, and interests. Remedial loops should be provided for the slower achiever and branches should be designed for the gifted student in order that he can by-pass the additional instruction needed to meet the terminal performance standard. A well designed system of instruction should provide a continuous feedback of information to both the student and instructor. Since this method of instruction places the responsibility of learning directly on the student, it requires considerable self-discipline. Therefore, it is

6. J. W. Thornton and J. W. Brown (eds.), *New Media and College Teaching*, (Washington: Department of Audiovisual Instruction, National Education Association, 1968), p. 9.

essential for both morale and motivation that he be continuously informed about his progress. Then too, continuous feedback of student performance enables the instructor to discover weaknesses in the system and to initiate changes. For example, there may be a need to modify the number of learning steps in a given sequence of instruction or to clarify an instructional objective.

The development of such an instructional system requires large inputs of time, money, and creativity. Without strong administrative support in the form of released time, financial aid, and operational latitude it is doubtful that the program can succeed. As an alternative, it might be expedient to consider developing one or two short course segments each semester with a long range view of introducing the complete instructional program at the end of a two- or three-year period. Such a procedure would allow ample time for the testing and evaluation of each segment and spread the cost of procuring equipment over several years.

The overhead projector with accompanying transparencies is one of the most versatile, effective, and widely used of all the new or relatively new instructional media. To the lecturer in a large auditorium its use is particularly effective. However, in any circumstance graphs, maps, and charts prepared prior to classroom presentation frees the instructor from laborious and time-consuming chalkboard illustrations and lengthy notations of facts, figures, and relationships. In many instances, relatively inexpensive color transparencies of countries, regions, and continents can be substituted for wall maps. The overhead projector is particularly suited for showing the location and distribution of physical and cultural phenomena on the earth's surface. Its utility is further enhanced when one spatial distribution is compared visually with another, or to a series of others. A transparency of one base map and several accompanying overlays can be utilized as a first approximation of the nature and degree of the relationship between climate, soils, native vegetation, land use, and population distribution for a given region. A second approximation with respect to land use and population distribution would necessarily include examining a host of additional variables. Simple relationships between two variables can be visually portrayed by scatter diagrams which stimulate student interest in problem-solving which can lead to more sophisticated techniques. These techniques in turn can be taught through the use of the overhead projector and accompanying transparencies.

Currently, there is a wide variety of projecturals available from commercial and educational sources. Many of these are designed in consultation with professional geographers and are of excellent quality. Others are being turned out with little or no professional guidance and are of dubious value as instructional media in higher education. Sorting out the well-designed and accurate projecturals from those of lesser quality and utility can easily be arranged during the free examination period that most commercial companies offer. On many campuses audio-visual centers provide the technical skills and equipment for designing and producing transparenceis at minimal cost. An innovative teacher, equipped with an overhead projector and appropriate transparencies, can greatly improve his classroom performance and enhance the learning effectiveness of his students.

Another recent innovation is the 8mm. single-concept film loop. In this form, each film deals with a single concept and normally lasts from three to ten minutes. These films are most appropriate for independent study, but may be used for medium-size class instruction. Most of the projectors have earphone or loudspeaker sound transmitting systems. Commercially produced, these loops are packaged in plastic containers, are easily installed in the projector, are continuous, and may be

run over and over again by the student until he feels that he understands the concept. They require neither threading nor rewinding and may be stopped and started anytime. The concepts developed may range from the Coriolis force to the diffusion of innovation. The film loops may be in black and white or in color. A growing number of audio-visual departments and interested professors are developing their own film loops rather than purchasing them commercially. In this manner, specific instructional objectives can be tailored to the needs of a particular course.

Programmed instruction in one form or another has been available as an instructional medium for some time. Until recently, programmed materials were commonly in book form or on tapes. Within the last decade the computer has successfully invaded the field and the older methods appear to be giving way to this newer medium of instruction. In any event, computer-assisted instruction will be dealt with separately in this report.

Programmed instruction is a method of self-learning that presents small segments of instructional material and then challenges the student to demonstrate his comprehension of the material covered or the skills involved. If he fails to achieve the programmed objective he is "branched" to a remedial loop or must repeat the initial material.

> In summary, it is evident that programmed learning is a supplement, not a substitute, for the teacher in person-to-person relationships with students. The role of programmed instruction seems to be primarily that of providing students with specific learning tasks that can be mastered economically and efficiently while working alone. There are no longer questions as to the effectiveness of the various kinds of programs in teaching factual or repetitive material. The problem of the near future seems similar to the problem that arose after the invention of printing and the introduction of the textbook: to ensure an adequate supply of programs... so that instructors can choose those that are competently devised and fit well the objectives and outline of their course materials. Because most instructors will not be expected to be competent in developing programs for their courses, concerted effort will be required in order to provide the needed software to capitalize on the advantages of this learning technique.[7]

Use of the computer in programmed learning (computer-assisted instruction) has several distinct advantages over the traditional books and tapes. The computer can be programmed to distinguish between individuals and can respond to them in different ways. Although this is a rather involved procedure, once done, it is permanent and can be reused indefinitely. In this manner the computer can select the proper branching for an individual response. While traditional media can only branch on the answer to the last question, the computer can look back at previous responses and branches, and on the basis of any answer, or series of answers, branch in certain desired ways. Another obvious advantage is that the computer facilitates the rapid retrieval of information from the data file. The older media used in programmed instruction lack this capability.

In computer-assisted instruction, the student sitting at an inquiry station communicates directly with the computer through an electric typewriter. Using the typewriter as an input and output device, the computer presents programmed information, asks questions, analyzes responses, and maintains records of student

7. *Ibid*, p. 68.

performance. This system of instruction is admirably suited to differentiate and to consider the rate of invididual learning ability. The computer when properly programmed can take into account a wide variety of differences in the rate of learning. In essence, programs in computer-assisted learning are only limited to their branching structure by the ability, knowledge, and insight of the course author. The functions of computer-assisted instruction are varied. It may be employed for drill and diagnosis, for tutorial purposes, or for simulation. A simulation program assumes that the student possesses necessary skills and concepts and now must apply this knowledge to simulate a complex situation. In a well-designed simulation program the student soon learns to modify his inputs of structured responses in order to achieve a successful outcome.

Gordon Fielding, an investigator in the use of computer-assisted instruction in geography, states that:

> The student is learning within a 'restricted system.' The able student will proceed rapidly. The less able, through being branched to remedial sequences, receives additional attention. A similar level of attainment should be achieved by both although more trials will be entailed for the latter student. It is in this ability to provide individualized instruction that the computer excels over the traditional lecture to large numbers of students. The well written program can distinguish between students with different backgrounds and abilities and handle them separately so that ultimately they all understand the concepts and factual information of the discipline. Few instructors are able or willing to do this in large introductory courses, and as a result many students are dismayed by the learning experience. However, CAI offers a new opportunity to provide a more individualized instruction and to solve pedagogical problems which the profession now faces.[8]

A recent publication by the Commission of College Geography on computer-assisted instruction has the comment that:

> The comparatively restricted use of computers in instruction when compared with their use in research and in administration is not due entirely to cost or the unavailability of hardware. Rather it is due largely to the unavailability of effective course programs. Several campuses have made computer facilities available for CAI but use has been limited because of the difficulty in preparing programs which achieve course objectives. Writing course programs is time-consuming and the learning achievements frequently disappointing. It has been estimated that it takes 100 hours to develop one hour of course material for the student at the terminal.[9]
>
> "For small institutions. . .individual chapters of CAI material can be used to supplement normal course offerings. These chapters can be easily modified to suit individual requirements and may be taken by students on their home campus, even if the institution is without a computer facility. All that is needed are typewriter terminals and telephone line

8. Gordon J. Fielding, "Computer-Assisted Instruction in Geography," *Journal of Geography*, Vol. 67, November 1968, pp. 475-476.

9. Association of American Geographers, *Computer Assisted Instruction in Geography*, (Washington:, D.C., 1969), Technical Paper No. 2., p. 3.

connections to a cooperating computer facility."[10]

Recognizing the potential of CAI, the Commission on College Geography supported by a grant from the National Science Foundation, sponsored a number of pilot studies at various institutions of higher learning to develop program units. The rationale leading to their development, the specific nature of the units, and other pertinent aspects of CAI are included in Technical Paper No. 2, *Computer Assisted Instruction in Geography,* published by the Association of American Geographers. Several additional units are currently being prepared for publication and will be available for dissemination in the near future.

CLASSROOM EQUIPMENT AND LIBRARY NEEDS

Several conditions influence the nature of the facilities, equipment, and library holdings that are available for use in teaching geography in the two-year colleges. The instructor who has been trained in geography, whose teaching load consists mainly of geography courses, and who has taken time to familiarize colleagues and administrators with the needs of geography should be in the best position to acquire a fair share of scarce funds. To aid instructors with little training and teaching experience in geography, the four-year college experience might be helpful in obtaining funds. This experience is briefly outlined here and in the appendices for the guidance of instructors, librarians, and administrators in the two-year colleges. Keen competition for limited funds is assumed.

Recommendations made for the geography classroom are based on the assumption that the classroom will be used for courses in other disciplines when it is not in use for geography courses. Thus, in designing and equipping the classroom, flexibility of use is considered essential. Equipment and library recommendations are made at two levels: 1) a minimum basic "package" of equipment and library holdings essential for an effective but small program consisting of one or two geography courses; and 2) equipment and library materials needed for a more varied program in geography which provides for a much larger number of students and is staffed with well-trained geographers who are employed to teach only courses in geography. These recommendations are presented as guidelines only, and are not meant to be inflexible lists of standardized materials that must be purchased completely and with definite priorities of purchase established.

The Geography Classroom

As a unit within the social science division, geography is seldom provided with an arrangement of space and with equipment specifically designed for the effective teaching of geography courses. The space and furniture needs for geography are not elaborate or expensive. Arranging and equipping a room for teaching physical geography with provision for laboratory work presents the biggest problem when flexibility for other uses must be recognized. A common approach and a good compromise involves the use of tables and chairs rather than the regular student armchair.

The need for table space is especially critical for handling physical geography laboratory sessions in which students will be using topographic maps, air photos, weather maps and charts, landform models, and other materials that must be placed

10. Fielding, *op. cit.,* p. 480.

on a table for effective study. Furthermore, the student will need space for use of a laboratory manual and a textbook in completing the laboratory assignments. Even for geography classes not involving a laboratory, tables and chairs are probably more satisfactory than the regular student armchair arrangement, since sheet maps, magazines, atlases, and newspaper articles are often passed around the room. Students are also required to work on outline maps from time to time in completing assignments and in taking examinations.

In order to seat 48 students in a lecture session, a room that is about 40 feet long and 28 feet wide will be needed if a table and chair arrangement is to be used. It is assumed that if more than about 50 students are to be permitted in a course section, an auditorium capable of seating a large number of students should be provided. The room should of course be well lighted, but adequate provision for darkening the room must also be made. A metal or wooden strip for hanging wall maps, charts, raised relief maps, and other materials should be placed across the entire front of the room at an appropriate visual level. A similar strip placed on one side of the room, if wall space is available, will permit such commonly used maps as those of the world and the United States to be kept on the wall. A blackboard extending completely across the room will provide much greater flexibility in using wall maps and a projection screen. A bulletin board near the entrance may be desirable.

In furnishing such a room with tables and chairs for seating 48 students, twelve tables arranged in six rows and each table seating four students for a lecture session to two students for a laboratory session will be needed. Since laboratory sections should not have more than a maximum of about 24 students per section, and 18 is probably preferable, extra tables will be available for the instructor to use for demonstration purposes in a physical geography laboratory situation. Twelve tables 24 inches wide, 30 inches high, and 10 feet long can be comfortably accommodated in a room that is 40 feet long and 28 feet wide. Wider tables would be more desirable for use of topographic maps but otherwise are generally not needed. Formica tops are durable and provide an ideal working surface. A diagram of this classroom may be found in Appendix B of this report.

If a course in physical geography with a laboratory is included in the curriculum, the room designed to accommodate 48 students in a lecture session should be increased in length by an additional 10 feet in order to provide the space needed for the use and storage of special equipment.

Equipment for the Geography Classroom

There are many different approaches involving a wide range in the expenditure of funds for equipping a geography classroom even when only introductory level courses are being taught. Equipping a classroom for the effective teaching of physical geography with a laboratory experience will be more expensive than equipping the classroom for such courses as regional, economic, or cultural geography. As a guide to the purchase of equipment for the geography classroom, a list of items generally considered essential by geographers along with approximate prices is given in Appendix C. A second list of additional items commonly used in the teaching of physical geography with a laboratory is also presented in Appendix C. In using these lists as a guide for the purchase of equipment, each geography instructor should review his probable needs carefully in relation to the courses which he is teaching and the teaching methods and techniques he employs. Blanket purchase of all items is not necessarily recommended. Several of the basic items listed are also commonly used in

courses other than geography. Such common equipment items as the slide, motion picture, and overhead projectors have been listed to emphasize the fact that for many geography instructors such items are absolutely essential for effective teaching.

Some instructors will make much more use of globes and wall maps than will others. However, many instructors are now substituting map slides or transparencies for the wall map. Such materials have the advantage of showing specifically those places or phenomena that are being stressed in class. Yet there are many occasions when a good wall map is a most effective tool in teaching geography.

In presenting the list of equipment items in the Appendix, slides and transparencies are not included. Although slides and transparencies can be purchased, many instructors will use their own. Several companies are now preparing map slides and transparencies suitable for a wide variety of uses in introductory courses. There is a more limited number of suppliers of colored or black and white slides of physical and cultural features and of economic activities. Suppliers usually sell them in sets for a specific region, such as the Caribbean, or with a particular topical emphasis such as banana production. A brief description of each slide is generally provided as part of the packaged set. Similarly, transparencies for use with the overhead projector are sold in topical or regional sets.

In recent years the National Council for Geographic Education has published a series of booklets in a "Do It This Way" series. Each of these booklets selling for one dollar is available from the national office of this organization which is located at Room 1532, 111 West Washington Street, Chicago, Illinois 60602. The authors and titles of these booklets are:

1) Halverson, L. H., *Geography Via Pictures*
2) Battram, J. V. and Varney, C. B., *Geography Via Projected Media*
3) McKinney, W. M., *Geography Via Use of the Globe*
4) Best, T. D., *Geography Via the Overhead Projector*

Library Holdings for Geography

A library is essential for the effective teaching of even introductory courses in geography. Library items that are generally used at the introductory level need not be extensive, but such items should be carefully selected and provision made for additional copies of the most regularly used titles. Books, periodicals, atlases, sheet maps, and statistical and other standard reference materials for geography should be available in the library.

The Commission on College Geography has recently revised its 1966 publication, a *Basic Geographical Library.* This report has been compiled particularly for the use of geography instructors and librarians in liberal arts colleges. The publication provides a carefully selected list of geographical works most likely to be useful in the teaching and study of geography at the undergraduate level. The report is available from the office of the Commission on College Geography, Arizona State University, Tempe, Arizona 85281.

In order to provide a more select list of geographical works most likely to be useful with introductory-level courses such as those generally offered in the two-year colleges, this panel has designated such titles in the revised *Basic Geographical Library* report, *A Geographical Bibliography for American College Libraries.* This has been done by underlining the item numbers appearing beside the entries in that report. The selection constitutes a list of the most basic items that should be acquired first in developing or strengthening the library holdings in geography in the

two-year college. Recommended subscriptions to periodicals are limited to the main American and Canadian periodicals in geography. When available, subscriptions should also be placed for state and regional periodicals such as *The Pacific Coast Geographer* and the *Southeastern Geographer* by colleges located in regions having such periodicals. Similarly, selected topographic, city, county, and other maps, as well as selected air photos for the community in which the college is located, can be used effectively in introductory courses in geography. Such sheet maps may appropriately be acquired for instructional use in the classroom. However, a duplicate set placed in the library will serve to enhance the student's use of such maps.

Atlases are particularly useful in helping students in introductory courses. Some atlases are useful primarily for locating and identifying places and phenomena mentioned in the textbook or discussed in class. Other atlases, commonly referred to as thematic atlases, provide the student with many maps dealing with different topics or themes such as climate, relief, population, and economic activities. Such an atlas is soon to be published by the U.S. Geological Survey. This is the *National Atlas of the United States,* which should be purchased by every two-year college in this country, since it will provide such a wide array of geographical information about the United States. In addition, many states have thematic atlases (e.g., *Atlas of Florida* and *Atlas of North Carolina*) that are very useful and should be acquired by two-year college libraries in the several states where they are available.

SUMMARY AND RECOMMENDATIONS

Geography has been greatly under-utilized in the context of general education in the United States compared, for example, with its place in the curriculum in Canada and Europe. Because of this unrealized potential in most secondary schools and in colleges and universities, professional geographers have undertaken the task of familiarizing colleagues in other disciplines and administrators with the contributions which geography can make to the general education of the students of today and tomorrow.

This report is directed primarily to administrators and geography instructors in the nation's rapidly growing two-year college program. Parts of the report are also worthy of the attention of geographers employed in four-year colleges and in universities, since many are unaware of the developments and needs of geography in the two-year colleges. Furthermore, professional geographers must grasp the very significant fact that a rapidly increasing number of students are entering upon a post-secondary educational experience in the two-year colleges of the nation.

In making the several recommendations which follow, the panel has attempted to recognize the great diversity of needs that exist in the many communities now being served by two-year colleges. Therefore, a need for flexibility is recognized as a vital prerequisite to effective implementation of the recommendations which are being made. The concern of this panel has centered mainly upon making adequate provision for stimulating and meaningful introductory geography courses in a program of general education. We have paid little attention to such matters as the proper sequence of geography courses in the education of a professional geographer. Furthermore, we contend that unless the introductory courses in geography are made exciting and useful, the student is not likely to take a second or third course in geography. A proper program for the geography major can easily be superimposed upon one or more courses in geography differing greatly in emphasis. Far more important is the development of introductory courses emphasizing geographic concepts and ideas that are meaningful to students. Such courses will serve to demonstrate the value of geography in general education.

Undue proliferation of introductory geography courses in the two-year colleges does not appear to be a major problem. As a matter of fact, there is clear evidence that the use of imagination in providing a meaningful diversity in course offerings has attracted far more students to geography than the use of a single introductory course. Furthermore, the great range in the training of instructors of geography now teaching in the two-year colleges makes it mandatory to offer those courses which they are best qualified to teach. Additional training in grography for present and future geography instructors should permit the junior college instructors to diversify but not unduly proliferate the introductory offerings in geography in keeping with the wide range of student interests that exist. In some communities there is evidence that geography may even be included effectively in terminal programs designed to train persons for positions in city and regional planning, state and federal government, and for some aspects of business and industry.

The panel presents the following specific recommendations for the careful consideration of administrators and geography instructors in the two-year colleges and of professional geographers in four-year colleges and universities:

1) Every effort should be made to include geography in those two-year colleges having a general education program.
2) The choice of courses should be based on instructional resources and

institutional and articulation needs rather than on any strict adherence to the specific courses described in this report. No one course discussed in this report is considered more appropriate than another for the two-year college.

3) High priority should be given to the development of new curriculum materials reflecting current trends in geography keeping in mind the variety of needs that exist in two-year colleges. Both the individual geography instructor and the geographic profession should share the initiative in undertaking such curriculum development.
4) Departments of geography in four-year colleges should recognize the first and second courses in geography at two-year schools as a part of the general or liberal education of the student and should not be unduly concerned about how closely such courses parallel the introductory level courses at their institutions. Moreover, for the student who transfers from a two-year college as a prospective major in geography, courses taken in geography at the two-year college should be accepted at least as elective credit in the major field for degree purposes.
5) Geographers in four-year colleges and universities are urged to contact two-year college geography instructors in their vicinity and seek ways to assist them in strengthening geography's position in these colleges.
6) The minimum academic preparation for two-year college geography instructors should be equivalent in level to a master's degree in the discipline. A strong academic graduate minor in a cognate field is desirable.
7) Appropriate academic preparation should include guided teaching experience.
8) As there is a serious regional imbalance in the supply of and demand for qualified geography instructors, college administrators are urged to seek such instructors from other parts of the United States when none are available locally to fill positions.
9) College administrators are encouraged to contact the Executive Director of the Association of American Geographers (1146 Sixteenth Street N.W., Washington, D.C. 20036) for assistance. He is in a position to help in advertising job openings in two-year colleges and in recommending local geographers with whom college officials might consult.
10) Geography departments should alert their students to the employment opportunities available in the two-year colleges. Each graduate department should accept the responsibility for the preparation of two-year as well as four-year college instructors.
11) There is an important need for a program of in-service training, particularly for those now teaching geography with limited backgrounds in the discipline.
12) An effective program of sabbatical leaves should be developed by two-year colleges, with the released time utilized by the geography instructors in attaining additional educational and professional goals. Foundations and other granting agencies should continue their efforts to provide instructors with financial support.
13) The two-year college geography instructor is urged to participate in the affairs of professional geography organizations at local, state, and national levels. Colleges should cooperate by encouraging such participation and by providing released time and financial support.
14) Professional organizations should accommodate the special problems and interests of two-year college instructors in order to enable them to meet their obligations both to their students and to their profession.

In preparing this report the panel has recognized the need to supply administrators, geography instructors, librarians, and others in the two-year colleges with guidelines for the provision of effective classroom space, proper equipment for geography instruction, a basic library of geographical works, and information on the effective use of audio-visual aids in the teaching of geography. In order to provide such information, three appendices covering these recognized needs are included.

APPENDICES

A. Selected Bibliography of Educational Media

B. Plans for Geography Classrooms

C. Maps and Equipment for the Geography Classroom

APPENDIX A

The following selected bibliography on educational media represents a small sample drawn from a rich and rapidly expanding literature devoted to innovations in instruction that make use of educational technology. Those wishing additional information concerning new media would profit by contacting the editors of the first three entries listed under general references.

SELECTED BIBLIOGRAPHY OF EDUCATIONAL MEDIA

GENERAL REFERENCES

Audio-Visual Communication Review: A quarterly journal published by the Department of Audiovisual Instruction, National Education Association, Washington, D.C.; an excellent source of information on research, theoretical development, and criticism relating to all sectors of educational technology.

Audiovisual Instruction: A monthly magazine published by the Department of Audiovisual Instruction, National Education Association, Washington, D.C.; a major source of information on instructional innovation in schools and colleges.

Educational Media: Published monthly by Educational Media, Inc., Fort Worth, Texas. This magazine is a 'must' for anyone seriously interested in multi-media instruction.

Gross, P., and J. Murphy, eds. *The Revolution in the Schools.* New York: Harcourt, Brace, and World, 1964.

McLuhan, Marshall. *Understanding Media.* New York, McGraw-Hill, 1964.

Meierhenry, Wesley C., ed. *Media and Educational Innovation.* Lincoln, Nebraska: University of Nebraska Press, 1966.

Taylor, C. W., and Frank E. Williams, eds. *Instructional Media and Creativity.* New York: Wiley and Sons, 1966.

Thornton, J. W., and J. W. Brown, eds. *New Media and College Teaching.* Washington, D.C.: Department of Audiovisual Instruction, National Educational Association, 1968.

Wittich, Walter A., and Charles F. Schuller. *Audio-Visual Materials: Their Nature and Use,* Fourth Edition. New York: Harper and Bros., 1967.

SPECIFIC MEDIA REFERENCES

Association of American Geographers, *Computer -Assisted Instruction in Geography,* (Washington, D.C., 1969), Technical Paper No. 2.

Beckman, R., R. Janke and G. Tanner, "Utilizing the Audio-Tutorial Approach," *Journal of Geography,* LXVI (May 1967), pp. 241-245.

Bollman, Charles G., "New Machines. How About Films?" *Educational Screen and Audiovisual Guide,* Vol. XLV, No. 6 (June, 1966), pp. 20-21.

Brown, L. H., "8mm for Local Production." *Audiovisual Instruction,* Vol. IX, No. 4 (April, 1964), pp. 234-235.

Carson, Linda, "Computer -Assisted Instruction – What It Can Do For Education," *Educational Media,* Vol. 1, No. 6 (October 1969), pp. 14-17.

Diamond, Robert M., ed. *A Guide to Instructional Television.* New York: McGraw-Hill, 1964.

Edling, J. V., A. W. Foshay, John R. Ginther, J. Herbert, W. Schramm, and H. Thelen. *Four Case Studies of Programmed Instruction,* New York: Fund for the Advancement of Education, Ford Foundation, 1964.

Erhardt, Rainer R. and David S. Mellander, "Experiences with an Audio-Visual-Tutorial Laboratory," *Journal of Geography,* LXVIII (February 1969), pp. 88-92.

Fielding, Gordon J., "Computer-Assisted Instruction in Geography," *Journal of Geography,* LXVII (November 1968), pp. 474-483.

Gildea, Ray Y. Jr. "Programmed Learning: Its Relationship to Geographical Education," *Journal of Geography,* LXVIII (December 1968), pp. 541-544.

Loughary, John W. *Man-Machine Systems in Education.* New York: Harper and Row, 1966.

Lumsdaine, A. A., and Robert Glaser, eds. *Teaching Machines And Programmed Learning: A Source Book.* Washington, D.C.: Department of Audiovisual Instruction, National Education Association, 1960.

Lumsdaine, A. A., and Robert Glaser, eds. *Teaching Machines And Programmed Learning, Part II: Data And Directions.* Washington, D. C.: Department of Audiovisual Instruction, National Education Association, 1965.

Lysaught, Jerome P., and Clarence M. Williams. *A Guide To Programmed Instruction.* New York: John Wiley & Sons, 1963.

Miller, Elwood E. "Film Clip Project – Halfway Point." *Audiovisual Instruction.* Vol. XI, No. 1 (January 1966), pp 34-35.

Miller, Elwood E., and J. L. Page. "Major Breakthrough In Film Use?" *Audiovisual Instruction,* Vol. X, No. 4 (April 1965), pp. 318-319.

National Council for Geographic Education, *Geography and Educational Media,* Normal, Illinois (1967), Topics in Geography No. 3.

Richason, Benjamin F. Jr., "The Audio-Visual-Tutorial Method," *Journal of Geography,* LXVI (April 1967), pp. 155-157.

Schultz, M. J. *The Teacher and the Overhead Projector.* Englewood Cliffs, New Jersey: Prentice-Hall, 1965.

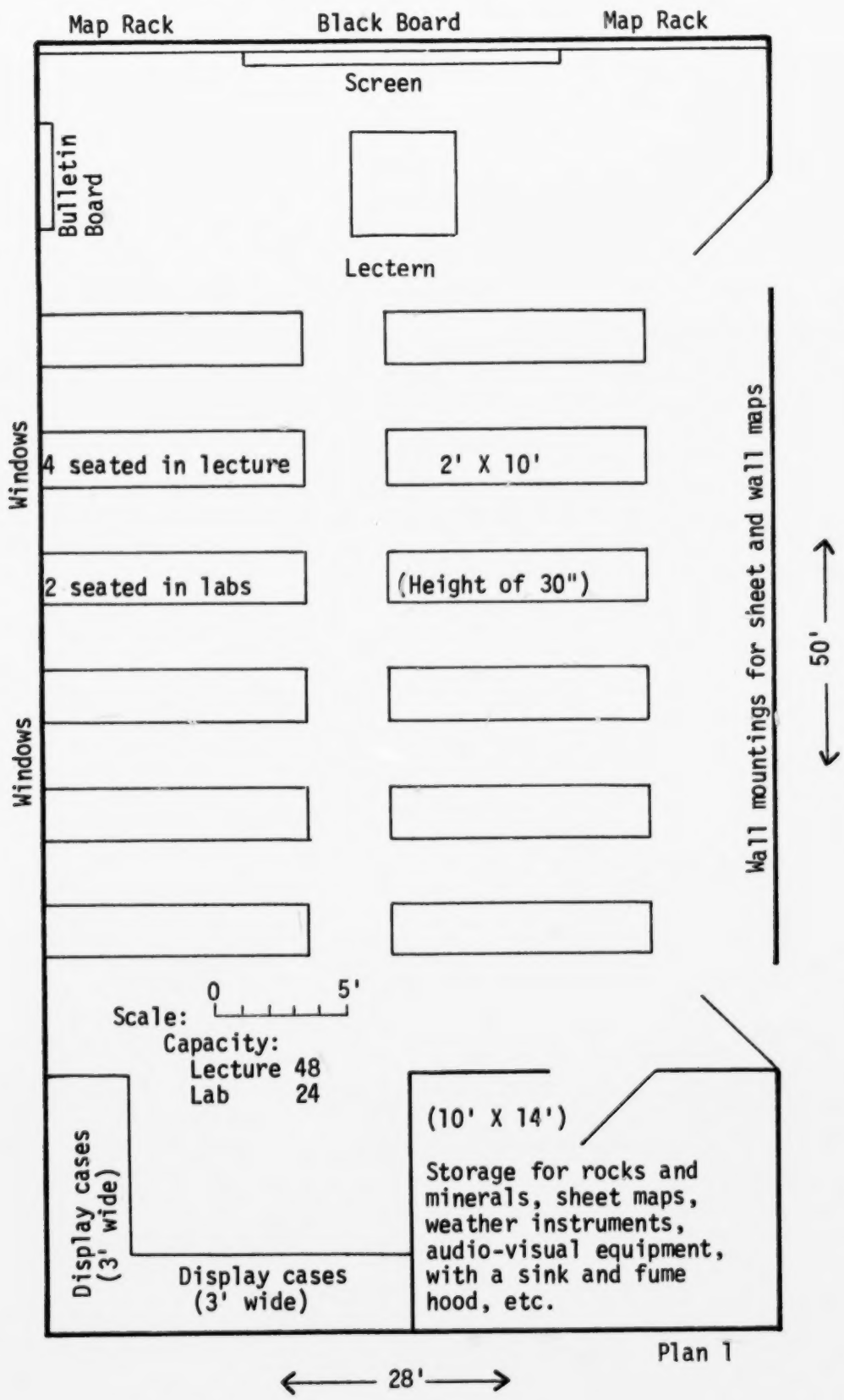
Suppes, Patrick. "The Uses of Computers in Education." *Scientific American,* Vol. 215, No. 3 (September 1966) pp. 206-220.

Taber, Julian, Robert Glaser, and Halmuth Schaefer. *Learning and Programmed Instruction.* Reading, Massachusetts: Addison-Wesley, 1965.

APPENDIX B

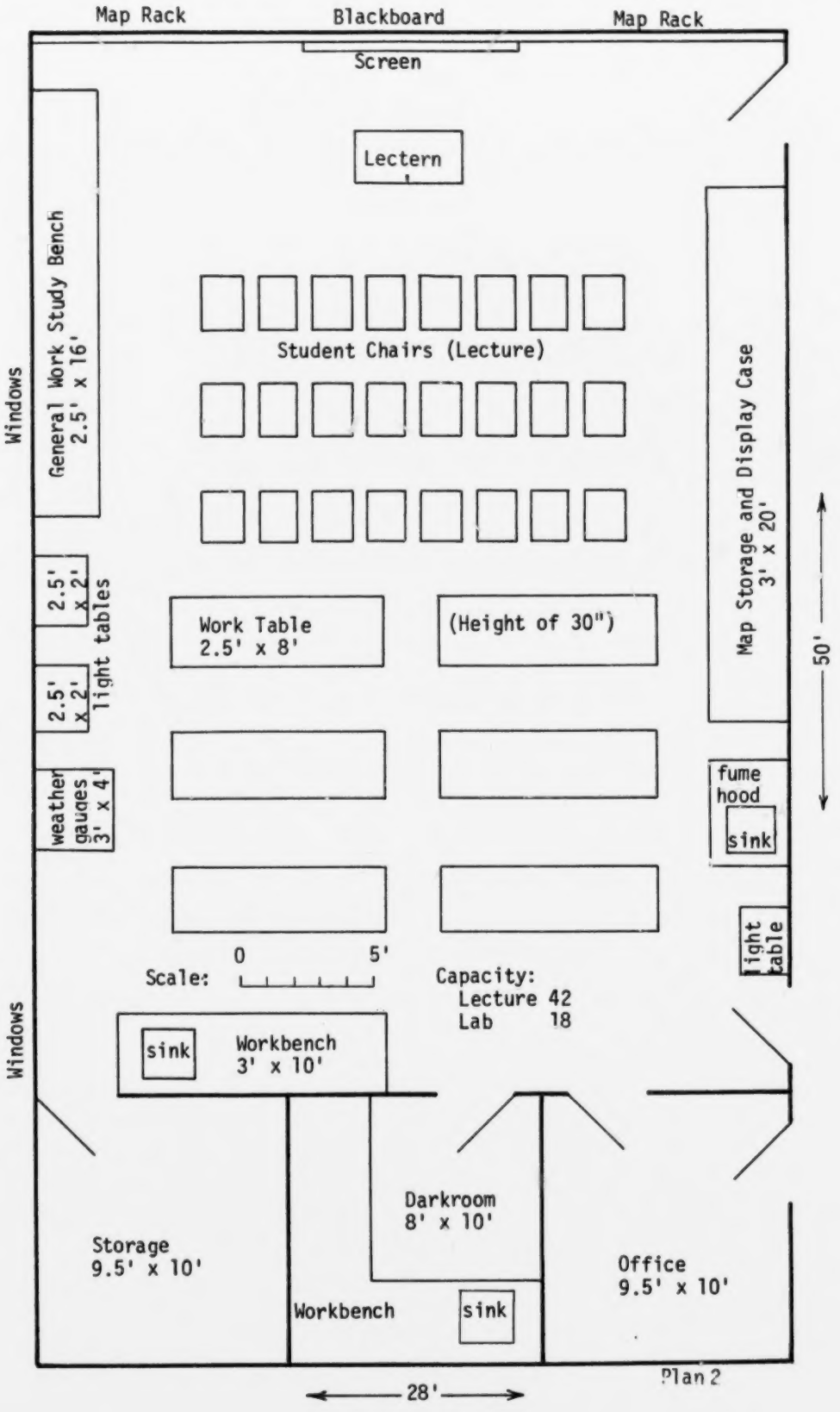
The two plans for geography classrooms presented here offer alternatives for resolving the problem of designing a classroom satisfactory for physical geography which can also be used for other geography or non-geography classes. Plan 1 assumes that offices and classrooms are to be located either in separate buildings or in separate parts of the same building. This plan offers flexibility in the assignment of classroom and office space. Plan 2 assumes that the instructors will have their offices next to a classroom in which they will do all or nearly all of their teaching. This plan has much merit if a sufficient number of courses in geography are being offered to justify complete use of one or more classrooms.

PLAN FOR A GEOGRAPHY CLASSROOM



Plan 1

PLAN FOR A GEOGRAPHY CLASSROOM



Plan 2

APPENDIX C

MAPS AND EQUIPMENT FOR THE GEOGRAPHY CLASSROOM

A great variety of maps and items of equipment can be used effectively in the geography classroom in teaching introductory level courses. However, when funds for purchasing maps and equipment are limited, it is essential that a careful selection be made in order to make effecient use of available funds. The suggestions which are given here are intended to serve as a guide for making a careful selection of essential maps and equipment. The list of maps and equipment items has been prepared primarily for use in introductory courses in geography such as world regional, cultural, and economic. Since several additional maps and equipment items are generally used in teaching physical geography, supplemental suggestions have been included as a guide for ordering maps and equipment for a course in physical geography. In making limited funds stretch as far as possible, it is important to recognize the opportunities for interdisciplinary borrowing or use of several major items of equipment such as overhead, movie and slide projectors, wall maps, and some other items.

Since the individual preferences of the instructional staff vary greatly in the use of many teaching aids such as slides, transparencies, sheet maps, and reprints, the panel has not attempted to make any specific recommendations for such items. Some of the suppliers of such teaching aids known to members of the panel are listed as a guide for the acquisition of such materials. A very useful guide entitled *Sources of Information and Materials: Maps and Aerial Photographs* has been released in a provisional edition (February, 1970) by the Committee on Maps and Aerial Photographs of the High School Geography Project. Copies of this report may be purchased for $1.50 from the High School Geography Project of the Association of American Geographers, P.O. Box 1095, Boulder, Colorado 80302.

WALL MAPS AND GLOBES

Every instructor of introductory courses in geography should have some wall maps available even though effective use is made of map slides or transparencies. Generally a basic minimum set of wall maps should consist of:

(1) A map of the world showing major physical and political features.
(2) A map of the United States showing major physical features and States.
(3) A map of each continent showing major physical and political features at a scale considerably greater than can be used for a map of the whole world.
(4) A map of the home state.

Several series of wall maps are available. Some of the wall maps which are published are designed for use in elementary and secondary schools whereas other wall maps are designed mainly for use in college classes, although some of these can be used effectively in secondary schools. If funds are extremely limited, the instructor will probably need to establish priorities for the purchase of wall maps. Certainly a wall map of the world and one of the United States should generally be purchased first, followed by purchases of maps for those continents or major world areas in which the instructor is most interested. The number of maps that should be purchased will depend upon the number and schedule arrangements of classes being taught, the variety of uses that are being made of maps, and the funds available for purchase. Therefore, an instructor should study map catalogs carefully before buying different wall maps.

Although classrooms vary greatly in size and arrangement the following two points should be weighed before purchasing wall maps:

(1) Maps should generally be as large as possible. However, in rooms with low ceilings it may not be possible to hang a really large map effectively so the lower part of the map may be seem by students in the back of the room.

(2) If geography classes are held in different classrooms, folded maps, maps mounted on simple wooden rods at top and bottom or perhaps maps mounted on spring rollers will be most easily taken from one room to another. If geography classes are always taught in the same room, a series of maps mounted on a rack is generally the most convenient method of display.

Publishers of wall maps are:

*American Map Company
Benefic Press
Cenco Scientific Company
Civic Education Service
George F. Cram Company
*Denoyer-Geppert Company
Hammond, Incorporated
Hearne Brothers
Modern School Supply Company
*A. J. Nystrom and Company
Rand McNally and Company
Weber Costello Company

*also markets foreign, especially European, wall maps

Map catalogs may be requested from the publishers of wall maps and it is recommended that a number of different catalogs be consulted. Addresses of publishers of wall maps are given at the end of Appendix C along with those of manufacturers of other classroom materials.

In addition to the wall maps which have been mentioned above as a basic minimum set for the geography classroom, there are more specialized needs for wall maps and globes in the teaching of geography which should be met at the discretion of the instructor within the limits of available funds. Some of these are listed here for the guidance of instructors and administrative personnel responsible for equipping the geography classroom.

(1) A large (16 or 24 inch) globe is a very useful tool in all geography courses. A globe will help students understand the systematic distortions of all map projections. Globes are also very useful in explaining several geographic terms such as latitude and longitude. In some courses in physical geography smaller globes for the individual use of students may also be needed. The companies manufacturing globes are:

Benefic Press
CBS Learning Center
Cenco Scientific Company
George F. Cram Company
Denoyer-Geppert Company
Farquhar Transparent Globes
Hammond, Incorporated

Hubbard Scientific Company
McGraw-Hill Films
A. J. Nystrom and Company
Rand McNally and Company
Ward's
Weber Costello Company

(2) Some of the more specialized maps that are useful teaching tools include the following:

a) Population maps.

b) Maps showing landforms, climate, vegetation, geology, and soils. Although such maps generally have been most used in teaching physical geography, they can also be effectively used in other introductory courses.

c) Raised relief maps are excellent for helping students understand the earth's physical features. These raised relief maps are available for the World, the United States, Canada, and all the continents except Australia.

d) A geographical terms model or map which helps to illustrate and explain the numerous geographical terms that often are quite new to the students enrolled in introductory geography courses.

e) Maps showing the distribution of economic activities and commodities produced are useful in courses with a world regional or economic orientation. Such maps are available from some of the major wall map publishers.

f) Maps showing the distribution of cultural features such as major religions, ethnic groups, races, and political units can be used effecrively at the introductory level. Some maps are available.

EQUIPMENT

In the teaching of geography several standard kinds of audio visual equipment will be used by most instructors. Equipment frequently used in teaching geography courses include the following items:

35 mm (2 x 2) automatic slide projector
35 mm (2 x 2) manual slide projector with film strip attachment
16 mm motion picture projector
Overhead projector
Tape recorder
Daylight screen
Drapes or shades for darkening the classroom

In addition to these generally used audio-visual aids, more specialized equipment will often be needed particularly in teaching courses in physical geography. Each instructor will have individual preferences depending upon such matters as his approach to the teaching of physical geography and the amount of laboratory time that is available for the course. As an illustration of the variety of equipment that may be needed, an inventory list of such equipment found in a long established two-year college with a frequently-taught course in physical geography is given here. Every instructor will of course not necessarily need all of the items listed; however, this list should serve as a guide to the range of equipment items likely to be needed

for physical geography.

MATERIALS AND EQUIPMENT USED FOR PHYSICAL GEOGRAPHY
JOLIET JUNIOR COLLEGE

EQUIPMENT

16 mm movie projector
35 mm slide projector
35 mm filmstrip projector
Overhead projector
Tape recorder
Charts for projectors equipped with outlets
Duplicating machine (spirit)
Stereoscopes (24)

WEATHER INSTRUMENTS

Maximum-minimum thermometer
Barometer
Thermograph
Barograph
Hygrometer (wet-dry bulb)
Sling psychrometer
Dew-point apparatus

MODELS

Planetarium
Map projection models
Volcano model

WALL MAPS

Raised relief map of the world
World physical-political map
Raised relief map of the United States
Physiographic regions of the United States
World climatic map
World rainfall map
Physical-political maps for each continent
United States physical-political map
United States regional maps
State maps for Illinois and California

GLOBES

16- or 24-inch physical globe
16-inch slated globe
6- or 8-inch globes for individual student use

TOPOGRAPHIC MAPS

Approximately 70 class sets of 30 maps each of 15 and 7½ minute quadrangles available from U.S. Geological Survey, Washington, D.C. 20242
(Index of 100 selected topographic maps from the U.S. Geological Survey is a good guide for selecting these maps)
Several sets are for the local area. Raised relief maps of selected quadrangles are

also used.

AIR PHOTOGRAPHY (See under Airphotos for address)

Index map of the United States
Photo index of local county
15 to 20 sets of stereo pairs of local features
Stereo pairs of selected landforms

SLIDES

Strahler film of all diagrams in the Physical Geography text provides hundreds of charts and diagrams. (Instructor can select and mount the ones he wants.)

ROCKS AND MINERALS

A general set of igneous, sedimentary and metamorphic rocks and a set of economic minerals for demonstration and display.

WEATHER MAPS

Two or three class sets of maps illustrating certain weather phenomena over a two- or three-day period –mid-latitude cyclone, hurricane, stable mid-winter high, etc. Available from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

BOOKLETS

Class sets of:
"How Topographic Maps are Made." Free from U.S. Geological Survey
"Stereogram" University of Illinois (Hubbard Scientific)
"Weather Maps" by John Hidore (W. C. Brown)
Reprints –
Bobbs-Merrill Reprints in Geography available from
Bobbs-Merrill Company, 4300 West 62nd Street,
Indianapolis, Indiana 46206
Scientific American Reprints available from
W. H. Freeman and Company, 660 Market Street,
San Francisco, California 94104

Basic Components of a Junior College Weather Station

	Approximate Cost
Instrument Shelter	$ 122.00
Anemometer and Vane (This price does not include a recording system)	250.00
Hygrothermograph (records relative humidity and temperature) Another model is available at less cost!	225.00

Barograph (Microbarograph costs approximately $200.00 more)	200.00
Rain Gauge with Tripod	68.00

Companies selling instruments listed above are:

Science Associates, Inc.
P. O. Box 230
Princeton, New Jersey 08540

Ward's Natural Science Establishment, Inc.
Catalog for Biology and the Earth Sciences
P. O. Box 1712
Rochester, New York 14603

Cambosco Scientific Company, Inc.
Boston, Massachusetts 02135

Companies from which equipment needed for the teaching of courses in physical geography can be obtained are as follows:

Raised Relief Models

Cenco Scientific Company
Denoyer-Geppert Company
Hubbard Scientific Company
Kistler Graphics
A. J. Nystrom and Company
Ward's

Demonstration and Other Equipment

Benefic Press
Cenco Scientific Company
George F. Cram Company
Denoyer-Geppert Company
Farquhar Transparent Globes
Hubbard Scientific Company
Rand McNally and Company
Ward's
Weber Costello Company

Addresses of these companies are given at the end of Appendix C.

SLIDES, TRANSPARENCIES, FILMS, OUTLINE MAPS, SHEET MAPS, AND AIRPHOTOS

SLIDES AND TRANSPARENCIES

Many different situations for using slides, transparencies, films, outline maps, sheet maps, and airphotos should characterize the dynamic geography course. Many instructors have taken their own slides of physical, cultural, and economic features and these may be used effectively. Transparencies of maps and charts are also frequently prepared by geography instructors and are designed for use in specific

situations in their classrooms. Instructors also may select from commercially available slides and transparencies in meeting a wide range of needs in their classrooms.

A major supplier of color filmstrips and 2 x 2 slide sets on geography, social studies, history and archaeology is Budex Films and Slides, Inc., P. O. Box 307, Santa Barbara, California 93102. Their filmstrips and slide sets are accompanied by background information for each frame or slide. A catalog is available upon request.

Map transparencies for use with overhead projectors are available from the following companies and catalogs will be sent upon request.

Allyn and Bacon
American Map Company
Cenco Scientific Company
Denoyer-Geppert Company
Encyclopaedia Britannica Films
Hammond, Incorporated
Instructo Products Company
Modern School Supply Company
A. J. Nystrom and Company
Popular Science Publishing Company
Rand McNally and Company
Teachers Publishing Company
Valiant Instructional Materials Corporation
Ward's
Weber Costello Company

Addresses of these companies are given at the end of Appendix C.

FILMS

Motion Picture Films (16 mm) that are commercially produced as well as some government films are available from film libraries located in nearly every state. Such films may be rented at moderate prices, whereas the cost of direct purchase of such films would often be prohibitive. Information about available films as well as reservations for film rentals should be requested directly from the film library nearest to your college. A list of film libraries and their addresses follows:

ALABAMA

Audio-Visual Aids Service, Extension Division, University of Alabama, University 35486

ARIZONA

Northern Arizona Film Library, Northern Arizona University, Flagstaff 86001, Audio-Visual Center, Arizona State University, Tempe 85281, Bureau of Audiovisual Services, University of Arizona, Tucson 85721

ARKANSAS

Audio-Visual Section, Arkansas State Teachers College, Conway 72032, Audio-Visual Center, Arkansas State College, State College 72467

CALIFORNIA

University Extension, University of California, Berkeley 94720, Craig

Corporation, 3410 South LaCienega Boulevard, Los Angeles 90016, Craig Corporation, 215 Littlefield Avenue, S. San Francisco 94080

COLORADO

Bureau of Audiovisual Instruction, University Extension Division, University of Colorado, Boulder 80302, Instructional Materials Center, Colorado State College, Greeley 80631

CONNECTICUT

Audio-Visual Center, University of Connectucut, Storrs 06268

DISTRICT OF COLUMBIA

Paul L. Brand & Son, 2153 K Street, N.W., Washington 20037

FLORIDA

Educational Media Center, Florida State University, Tallahassee 32306

GEORGIA

Georgia Center for Continuing Education, University of Georgia, Athens 30601

IDAHO

Audio-Visual Services, Idaho State Univeristy, Pocatello 83201

ILLINOIS

Educational Film Library, Northern Illinois University, DeKalb 60115, Audio-Visual Service, Southern Illinois University, Carbondale 62901, Visual Aids Service, University of Illinois, 704 South Sixth, Champaign 61822, Ideal Pictures, 417 North State Street, Chicago 60610

INDIANA

Audio-Visual Center, Indiana University, Bloomington 47401

IOWA

Visual Instruction Service, Iowa State University of Science and Technology, Ames 50010, Audiovisual Center, University of Iowa, Iowa City 52240

KANSAS

Bureau of Visual Instruction, University Extension, University of Kansas, Lawrence 66045

KENTUCKY

Audio-Visual Services, University of Kentucky, Lexington 40506

MAINE

Audio-Visual Center, University of Maine, Orono 04473

MARYLAND

Kunz, Inc., 426 North Calvert Street, Baltimore 21202

MASSACHUSETTS

Abraham Krasker Memorial Film Library, Boston University, School of Education, 765 Commonwealth Avenue, Boston 02215, Ideal Pictures, 42 Melrose, Boston 02218

MICHIGAN

Audio-Visual Education Center, University of Michigan, Frieze Building, 720 East Huron, Ann Arbor 48104

MINNESOTA

Audio-Visual Extension Service, General Extension Division, University of Minnesota, 2037 University Avenue, S.E., Minneapolis 55455

MISSISSIPPI

Audio-Visual Education, School of Education, University of Mississippi, University 38677

MISSOURI

Audio-Visual Center, Southeast Missouri State College, Cape Girardeau 63701, University Extension Division, 119 Whitten Hall, University of Missouri, Columbia 65201

MONTANA

Audiovisual and Library Services, State Department of Public Instruction, Helena 59601

NEBRASKA

Bureau of Audio-Visual Instruction, University Extension Division, University of Nebraska, Lincoln 68508

NEW HAMPSHIRE

Audio-Visual Center, University Extension, University of New Hampshire, Durham 03824

NEW MEXICO

Film Library, Eastern New Mexico University, Portales 88130

NEW YORK

Alden Films, 5113 - 16th Avenue, Brooklyn 11204, Educational Film Library, State University College at Buffalo, 1300 Elmwood Avenue, Buffalo 14222, Film Library, Collendale Campus, Syracuse University, 1455 East Colvin Street, Syracuse 13210

NORTH CAROLINA

Bureau of Audio-Visual Education, University of North Carolina, Chapel Hill 27514

NORTH DAKOTA

Film Library, Division of Supervised Study, State University Station, Fargo 58102

OHIO

Church School Pictures, 1118 Walnut, Cleveland 44114, Twyman Films, Inc., 329 Salem Avenue, Dayton 45406, Audio-Visual Services, Kent State University, 210 Education Building, Kent 44240, M. H. Martin Co., 1118 Lincoln Way East, Massillon 44646

OKLAHOMA

Extension Division, Educational Materials Services, Audio-Visual Education, University of Oklahoma, Norman 73069, Audio-Visual Center, Oklahoma State University, Stillwater 74074

OREGON

Audiovisual Instruction, Division of Continuing Education, Coliseum 131, Corvallis 97331

PENNSYLVANIA

J. P. Lilley & Son, Inc., 928 North Third Street, Harrisburg 17105, Indiana Film Service, Indiana University of Pennsylvania, Indiana 15701, Audio-Visual Aids Library, Pennsylvania State University, University Park 16802, L. C. Vath Audio-Visual Aids, 449 North Hermitage Road, Sharpsville 16150

SOUTH CAROLINA

College of General Studies and Extension, Audio-Visual Division, University of South Carolina, Columbia 29208

SOUTH DAKOTA

Film Library, South Dakota State University, Brookings 57006, Film Library, Extension Division, University of South Dakota, Vermillion 57069

TENNESSEE

Peabody Learning Resources Center, George Peabody College for Teachers, Nashville 37203

TEXAS

Visual Instruction Bureau, Division of Extension, University of Texas, Austin 78712

UTAH

Educational Media Services, Instructional Materials, Brigham Young University,

Provo 84601, Educational Media Center, University of Utah, 207 Bennion Hall, Salt Lake City 84112

WASHINGTON

Audio-Visual Library, Central Washington State College, Ellensburg 98926, Audio-Visual Center, Washington State University, Pullman 99164, Craig Corporation, 540 South Front Street, Seattle 98108, Audio-Visual Services, University of Washington, Seattle 98105

WISCONSIN

Film Library, Audiovisual Center, Wisconsin State University, LaCrosse 54601, Bureau of Audio-Visual Instruction, University of Wisconsin, 1312 West Johnson Street, Madison 53715

OUTLINE MAPS

Outline maps are very useful for student projects and for use in conducting examinations. Such maps may be ordered by a local bookstore and purchased directly by students enrolled in your classes as needed for projects and examinations. Outline maps are available in regular 8½ x 11 inch size as well as in somewhat larger sizes from some companies. A list of companies from which desk outline maps may be purchased is given here.

Desk Outline Maps

American Map Company
Cenco Scientific Company
University of Chicago, Department of Geography
George F. Cram Company
Denoyer-Geppert Company
Hammond, Incorporated
A. J. Nystrom and Company
Rand McNally and Company
Teachers Publishing Company

Addresses of these companies are given at the end of Appendix C.

SHEET MAPS

Sheet maps are available from Federal, State, and local government agencies as well as from geographical societies and commercial sources. Many foreign government maps are also available. This is especially true for countries of Western Europe and countries of the British Commonwealth. Many foreign embassies in Washington, D.C. will generally supply free upon request a worthwhile general map of their respective countries.

Many Federal agencies publish different kinds of maps. Some are large scale maps which present considerable information for a relatively small area. Others are for the country as a whole or for some major segment of it. The clearing house for information about all maps published by the Federal Government is the Map Information Office, U.S. Geological Survey, Washington, D.C. 20242. This Map Information Office has several free booklets which may be very helpful to the geography instruction. Some of these useful booklets and leaflets are:

Topographic Maps, 20 pp. Discusses the contents of a topographic map and how it is compiled; includes scales, series, control surveys, symbols, and map revision.

Topographic Maps: Silent Guides for Outdoorsmen, 8 pp. Includes directions on map mounting and preservation.

Types of Maps Published by Government Agencies
Geographic Centers of the United States
The National Atlas Project
Geologic Maps of the Moon
Maps of the United States, M10-1
Metropolitan Area Topographic Maps, M10-2
State Maps, M10-3
Shaded Relief Maps, M10-4
Topographic Maps of National Parks, Monuments, and Historic Sites, M10-5

Of course individual maps may be purchased from the U. S. Geological Survey and from other Federal agencies. Generally the purchaser is required to pay in advance for maps being purchased.

Probably the most useful sheet maps for introductory geography courses are the large-scale (1:24,000 and 1:62,500) topographic maps published by the U. S. Geological Survey. These maps can be used effectively as a means of introducing the students to some of the cultural and physical characteristics of the community in which they are living. About once a year the U. S. Geological Survey publishes an Index to Topographic Maps for each State. These indexes indicate the areas that are covered by topographic maps and also the date of the most recently published maps for the areas mapped. An index for your State may be obtained free from the Map Information Office, U. S. Geological Survey, Washington, D.C. 20242. Each topographic map now costs 50c. When maps are ordered in quantity, considerable discount is given.

For courses in physical geography *A Set of One Hundred Topographic Maps Illustrating Specified Physiographic Features* is available from the U. S. Geological Survey. Generally for effective use of topographic maps in introductory courses such as those available for the local community or the above set illustrating physiographic features, it is necessary to have a map for each student or at least a map for every two students. Therefore, a careful review of one's objectives and outlines for the courses being taught should be carried out before multiple copies of topographic maps are ordered.

Mapping agencies exist in every state. Information about maps being issued may often be discovered by examining various publications and announcements issued by state agencies. County and city government agencies also issue some maps that may be useful in the classroom. Also, nearly every city having a population of 10,000 or more has a map of the city which generally may be obtained free from the Chamber of Commerce.

The American Geographical Society and the National Geographic Society publish maps, some of which may be useful for particular topics in geography courses. Information about maps published by these two geographical societies may be obtained by writing to the societies whose addresses are as follows:

American Geographical Society
Broadway at 156th Street
New York, New York 10032

National Geographic Society
17th and M Streets, N.W.
Washington, D.C. 20036

Other sheet maps may be obtained commercially from the following companies:

Other Sheet Maps

Argosy Book Stores (old maps)
General Drafting Company (state road maps)
H. M. Gousha Company (state road maps)
Hammond, Incorporated (Lobeck landform maps)
Hearne Brothers (city maps)
Historic Urban Plans (old map reproductions)
Hubbard Scientific Company (topical maps)
International Map Company (foreign sheet maps)
Jeppesen and Company (reference maps & airline maps)
H. P. Kraus (old maps)
Map Corp. of America (city maps)
Orbis Terrarum (old maps)
Erwin Raisz (landform maps)
Rockford Map Publishers (property ownership maps & atlases)
Rand McNally and Company (state road maps)
R. R. Donnelly and Company (state road maps)
Sanborn Map Company (diagrammatic maps and atlases of over 11,000 urban areas – practically every town in the U.S. of 2,000 population or more)
Edward Stanford, Ltd. (foreign sheet maps)
L. S. Straight (old maps)
Thomas Brothers (city maps)
Telberg Book Corp. (maps of Communist areas; foreign geological maps)
News Map of the Week (weekly news map)

AIRPHOTOS

Airphotos like large scale topographic maps can serve as a very useful means of introducing students to the spatial dimensions of cultural and physical features of their home community. Aerial photographs or airphotos are available for nearly all parts of the United States. Various Federal agencies have been assigned the responsibility for taking airphotos for different areas from time to time. The Map Information Office of the Geological Survey serves as a clearing house for information about available airphotos. For much of the country the agency most likely to have up-to-date as well as airphotos for earlier periods back to about 1937 is the Aerial Photography Division of the Agricultural Stabilization and Conservation Service of the U.S. Department of Agriculture. This agency has two offices located as follows:

Western Laboratory
2505 Parleys Way
Salt Lake City, Utah 84109

(Airphotos for Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota and States westward of these are available from this laboratory.)

Eastern Laboratory
45 South French Broad Avenue
Asheville, North Carolina 28801

(Airphotos for States east of those listed above are available from this laboratory.)

The first step in obtaining airphotos from this agency is to request an index status map for the state for which airphotos are being requested. These index maps give information on scale, camera focal length, year of latest coverage, and availability of photo index sheets. The next step would be to order a photo index sheet for that part of a county for which you wish to obtain photographs. An order blank should also be requested. In order to get the proper index sheet, a fairly careful location by latitude and longitude or by designating position and distance in relation to a city in the county should be given. After the index has been obtained, the necessary information should be obtained from the index sheet and recorded on the order blank. Pre-payment is required. Each index sheet will cost $2.00 and a contact print (9" x 9") which will cover a relatively small area (about 5,800 acres or 9 square miles) will cost $1.25 per print unless more than 25 copies are ordered in which case the price will be $0.90.

Enlargements are also available. Enlarged airphotos of the college site are of great interest and will attract considerable attention from students when placed on the bulletin board or when studied in class along with a topographic map of the community. Multiple copies of airphotos should be obtained if they are to be used in the classroom.

ADDRESSES OF COMMERCIAL FIRMS LISTED IN APPENDIX C

Allyn and Bacon, Inc.
470 Atlantic Avenue
Boston, Massachusetts 02210

American Map Co., Inc.
3 West 61st Street
New York, New York 10023

Argosy Book Stores, Inc.
116 East 59th Street
New York, New York 10022

Benefic Press
10300 West Roosevelt Road
Westchester, Illinois 60153

Cenco Scientific Co.
2600 South Kostner Avenue
Chicago, Illinois 60623

University of Chicago
Department of Geography
1101 East 58th Street
Chicago, Illinois 60637

Civic Education Service
1733 K Street, N.W.
Washington, D.C. 20006

George F. Cram Co., Inc.
730 East Washington Street
P. O. Box 426
Indianapolis, Indiana 46206

Denoyer-Geppert Co.
8535 Ravenswood Avenue
Chicago, Illinois 60640

R. R. Donnelly
2223 South Dr. Martin Luther
King, Jr. Drive
Chicago, Illinois 60614

Encyclopaedia Britannica Films, Inc.
1150 Wilmette Avenue
Wilmette, Illinois 60091

Farquhar Transparent Globes
5007 Warrington Avenue
Philadelphia, Pennsylvania 19143

General Drafting Co.
Convent Station
New Jersey 07961

H. M. Gousha Co.
2001 The Alameda
San Jose, California 95126

Hammond Inc.
Maplewood
New Jersey 07040

Hearne Brothers
Executive Offices
26th Floor–First National Building
Detroit, Michigan 48226

Historic Urban Plans
Box 76
Ithaca, New York 14850

Hubbard Scientific Co.
P. O. Box 105
Northbrook, Illinois 60062

Instructo Products Co.
1635 North 55th Street
Philadelphia, Pennsylvania 19131

International Map Co., Inc.
140 Liberty Street
New York, New York 10006

Jeppesen and Company
Denver, Colorado

Kistler Graphics, Inc.
4000 Dahlia Street
Denver, Colorado 80216

H. P. Kraus
16 East 46th Street
New York, New York 10017

Map Corp. of America
316 Summer Street
Boston, Massachusetts 02110

McGraw-Hill Films
McGraw-Hill Book Co.
330 West 42nd Street
New York, New York 10036

Modern School Supply Co., Inc.
524 East Jackson Street
Goshen, Indiana 46526

News Map of the Week
7300 North Linder Avenue
Skokie, Illinois 60076

A. J. Nystrom & Co.
3333 Elston Avenue
Chicago, Illinois 60618

Orbis Terrarum
606 Metropolitan Avenue
Brooklyn, New York 11211

Popular Science Publishing Co., Inc.
Audio-Visual Division
355 Lexington Avenue
New York, New York 10017

Erwin Raisz
130 Charles Street
Boston, Massachusetts 02114

Rand McNally & Co.
School Department
P. O. Box 7600
Chicago, Illinois 60680

Rockford Map Publishers, Inc.
4525 Forest View Avenue
Rockford, Illinois 61108

Sanborn Map Co., Inc.
629 Fifth Avenue
Pelham, New York 10803

Edward Stanford, Ltd.
12-14 Long Acre
London WC2, England

L. S. Straight
349 East 10th Street
New York, New York 10009

Teachers Publishing Corp.
23 Leroy Avenue
Darien, Connecticut 06820

Telberg Book Corp.
Map Depository
P. O. Box 545
Sag Harbor, Long Island
New York 11963

Thomas Bros.
550 Jackson Street
San Francisco, California 94133

Valiant Instructional
Materials Corp.
172 Walker Lane
Englewood, New Jersey 07631

Ward's Natural Science
Establishment, Inc.
P.O. Box 1712
Rochester, New York 14603

Ward's of California
P. O. Box 1749
Monterey, California 93940

Weber Costello Co.
1900 North Narragansett Avenue
Chicago, Illinois 60639

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